



STIC Search Report

EIC 1700

STIC Database Tracking Number: 112207

TO: James Pasterczyk
Location: REM 9D21
Art Unit : 1755
January 16, 2004

Case Serial Number: 10/066221

From: Kathleen Fuller
Location: EIC 1700
REMSSEN 4B28
Phone: 571/272-2505
Kathleen.Fuller@uspto.gov

Search Notes

=> FILE REG

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=> FILE HCAPLU

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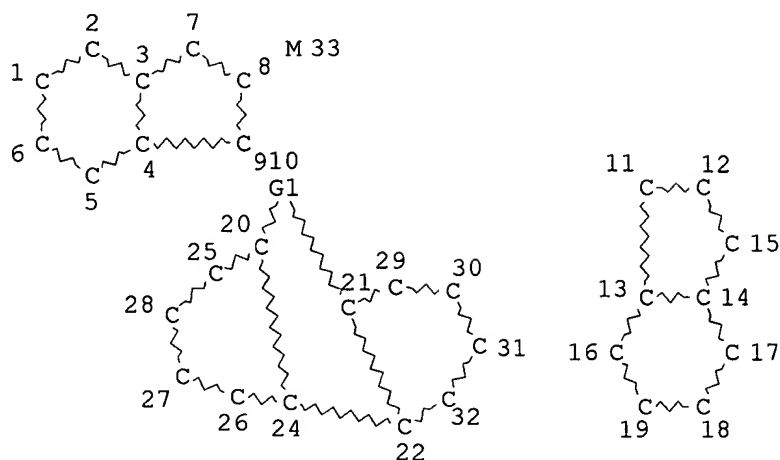
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FILE COVERS 1907 - 16 Jan 2004 VOL 140 ISS 4
FILE LAST UPDATED: 15 Jan 2004 (20040115/ED)

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> D QUE

L20 STR



*1519 structures
from this query*

VAR G1=C/SI/GE/SN

NODE ATTRIBUTES:

NSPEC IS R AT 33

DEFAULT MLEVEL IS ATOM

MLEVEL IS CLASS AT 21 22 24

DEFAULT ECLEVEL IS LIMITED

ECOUNT IS UNLIMITED AT 21 22 24

GRAPH ATTRIBUTES:

RING(S) ARE ISOLATED OR EMBEDDED

NUMBER OF NODES IS 32

STEREO ATTRIBUTES: NONE

L22 1519 SEA FILE=REGISTRY SSS FUL L20

L35 277 SEA FILE=REGISTRY ABB=ON L22 NOT FULLER?

L38 36 SEA FILE=REGISTRY ABB=ON L35 AND 1-2/TI,ZR,HF,V,NB,TA,CR,MO,W

L40 21 SEA FILE=HCAPLUS ABB=ON L38

=> D L40 BIB ABS IND HITSTR 1-21

L40 ANSWER 1 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2003:483141 HCAPLUS

DN 139:350964

TI Asymmetric dinuclear ansa zirconocene complexes with methyl and phenyl substituted bridging silicon atoms as dual site catalysts for the polymerization of ethylene

AU Alt, Helmut G.; Ernst, Rainer

CS Lehrstuhl fuer Anorganische Chemie, Laboratorium fuer Anorganische Chemie der Universitaet Bayreuth, Bayreuth, D-95440, Germany

SO Inorganica Chimica Acta (2003), 350, 1-11

CODEN: ICHAA3; ISSN: 0020-1693

PB Elsevier Science B.V.

DT Journal

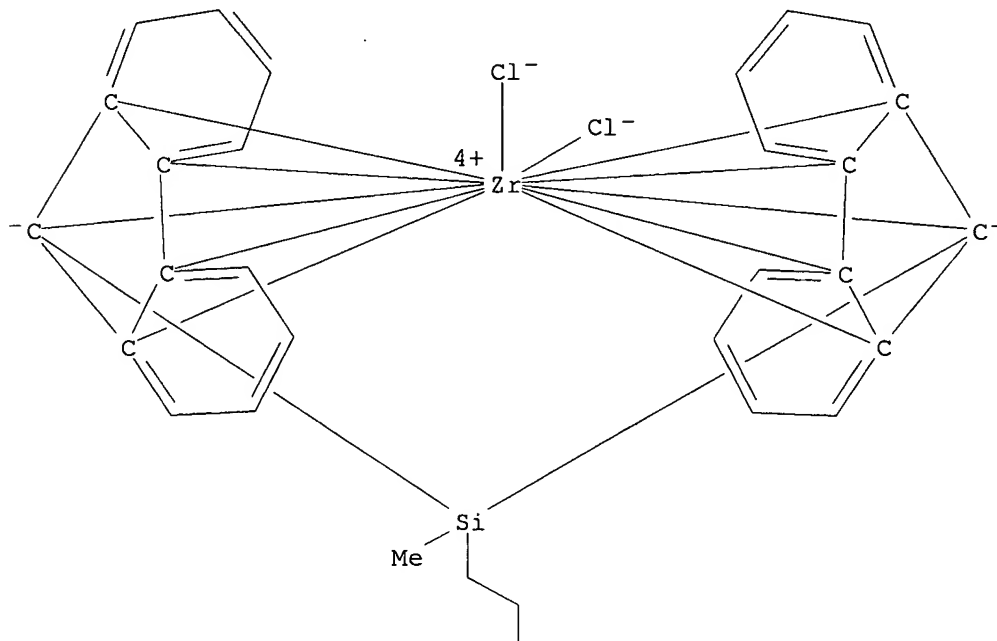
LA English

AB Sixteen asym. dinuclear ansa zirconocene complexes bearing cyclopentadienyl, indenyl or fluorenyl ligands and their ligand precursors have been synthesized and characterized by NMR spectroscopy. After

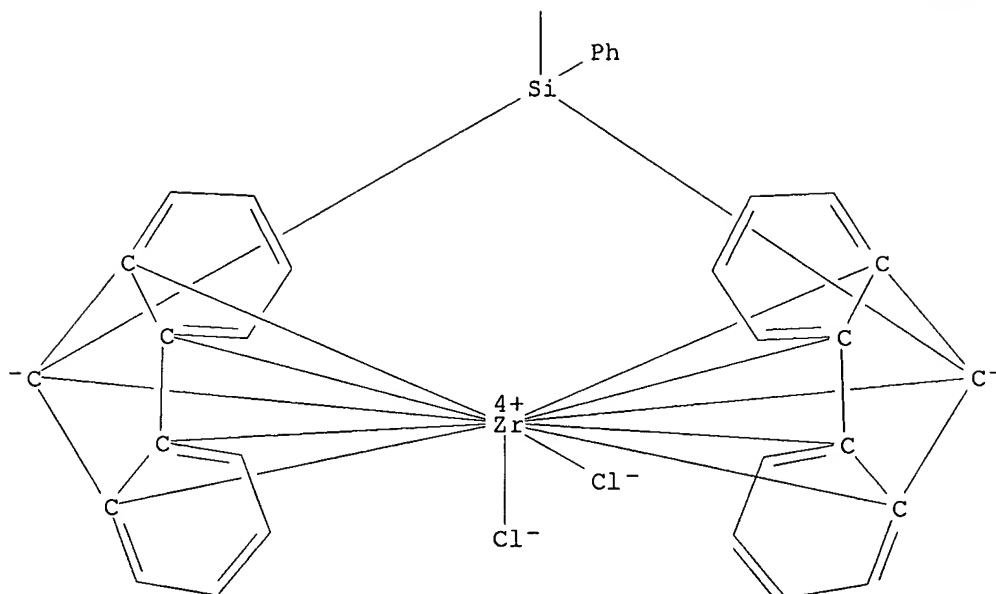
- activation with methylalumoxane (MAO), the complexes behave like dual site catalysts and produce polyethylenes with bimodal or broad mol. weight distributions in homogeneous and heterogeneous media.
- CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 29, 67
- ST zirconocene complex dinuclear asym ethylene polymn catalyst
- IT Aluminoxanes
RL: CAT (Catalyst use); USES (Uses)
(Me; preparation of asym. dinuclear ansa zirconocene complexes with Me and Ph substituted bridging silicon atoms as dual site catalysts for polymerization of ethylene)
- IT Polymerization
Polymerization catalysts
(preparation of asym. dinuclear ansa zirconocene complexes with Me and Ph substituted bridging silicon atoms as dual site catalysts for polymerization of ethylene)
- IT 124-70-9P, Dichloromethylvinylsilane 1873-92-3P,
Allyldichloromethylsilane 15411-12-8P 15983-86-5P 51346-62-4P
52217-54-6P 90054-19-6P 190390-98-8P 616897-81-5P 616897-82-6P
616897-83-7P 616897-84-8P 616897-85-9P 616897-86-0P 616897-87-1P
616897-88-2P 616897-89-3P 616897-90-6P 616897-91-7P 616897-92-8P
616897-93-9P 616897-94-0P 618099-44-8P 618099-45-9P 618099-46-0P
618099-47-1P 618099-48-2P 618099-49-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(intermediate; preparation of asym. dinuclear ansa zirconocene complexes with Me and Ph substituted bridging silicon atoms as dual site catalysts for polymerization of ethylene)
- IT 617713-66-3P 617713-67-4P 617713-68-5P 617713-69-6P 617713-70-9P
617713-72-1P 617713-73-2P 617713-74-3P 617713-75-4P 617713-76-5P
617713-77-6P **617713-78-7P 617713-79-8P**
617713-80-1P 617713-81-2P 617713-82-3P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(preparation of asym. dinuclear ansa zirconocene complexes with Me and Ph substituted bridging silicon atoms as dual site catalysts for polymerization of ethylene)
- IT 9002-88-4P, Polyethylene
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of asym. dinuclear ansa zirconocene complexes with Me and Ph substituted bridging silicon atoms as dual site catalysts for polymerization of ethylene)
- IT 75-79-6, Trichloromethylsilane 106-95-6, Allyl bromide, reactions
593-60-2, Vinyl bromide 1119-51-3, 5-Bromo-1-pentene 1631-84-1,
Dichlorophenylsilane 2695-47-8, 6-Bromo-1-hexene 3710-30-3,
1,7-Octadiene 4109-96-0, Dichlorosilane 4984-82-1, Sodium
cyclopentadienyl 5162-44-7, 4-Bromo-1-butene 7439-95-4, Magnesium,
reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(starting material; preparation of asym. dinuclear ansa zirconocene complexes with Me and Ph substituted bridging silicon atoms as dual site catalysts for polymerization of ethylene)
- IT **617713-78-7P 617713-79-8P 617713-80-1P**
617713-81-2P 617713-82-3P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(preparation of asym. dinuclear ansa zirconocene complexes with Me and Ph substituted bridging silicon atoms as dual site catalysts for polymerization of ethylene)

of ethylene)
 RN 617713-78-7 HCAPLUS
 CN Zirconium, tetrachloro[μ -[η 10: η 10-di-9H-fluoren-9-ylidene(methylsilylidyne)-1,2-ethanediyl(phenylsilylidyne)di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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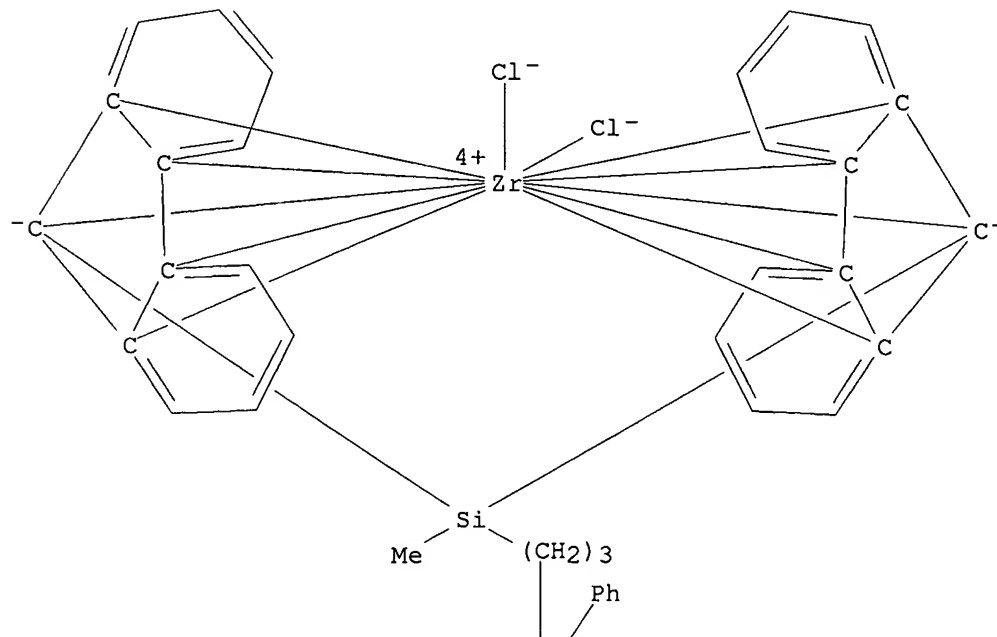
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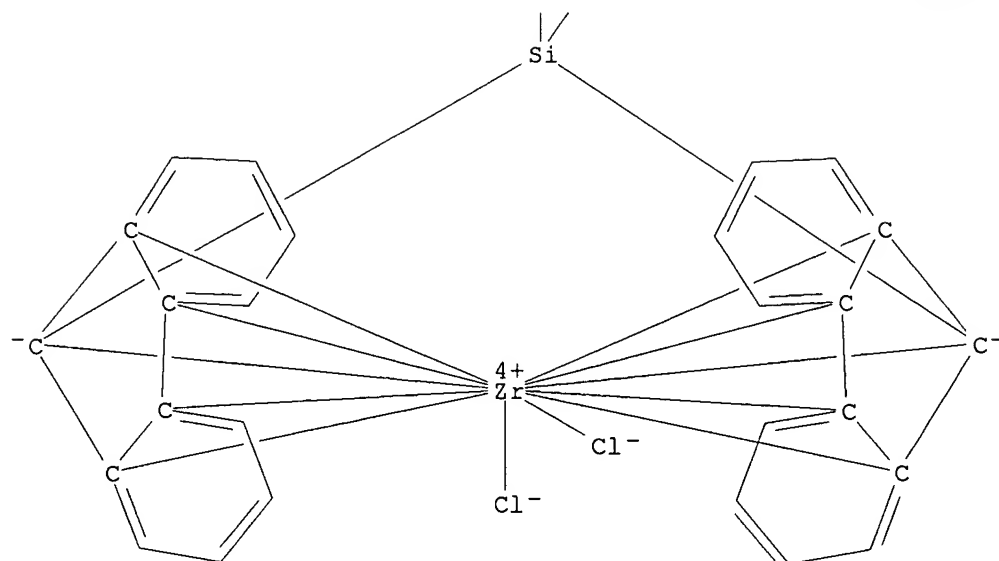
RN 617713-79-8 HCAPLUS

CN Zirconium, tetrachloro[μ -[η 10: η 10-di-9H-fluoren-9-ylidene(methylsilylidyne)-1,3-propanediyl(phenylsilylidyne)di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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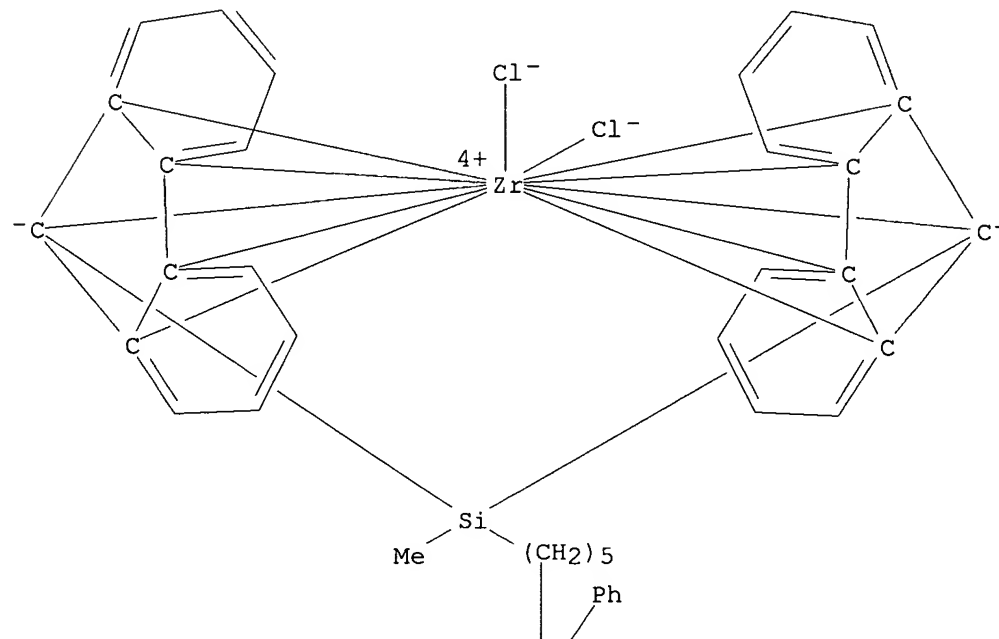
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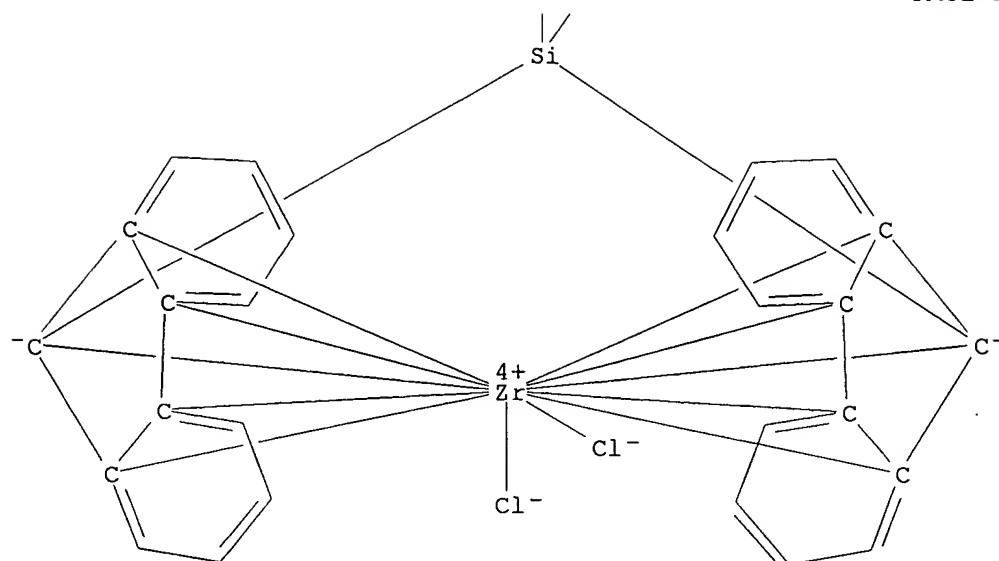
RN 617713-80-1 HCAPLUS

CN Zirconium, tetrachloro[μ -[η 10: η 10-di-9H-fluoren-9-ylidene(methylsilylidyne)-1,5-pentanediy] (phenylsilylidyne)di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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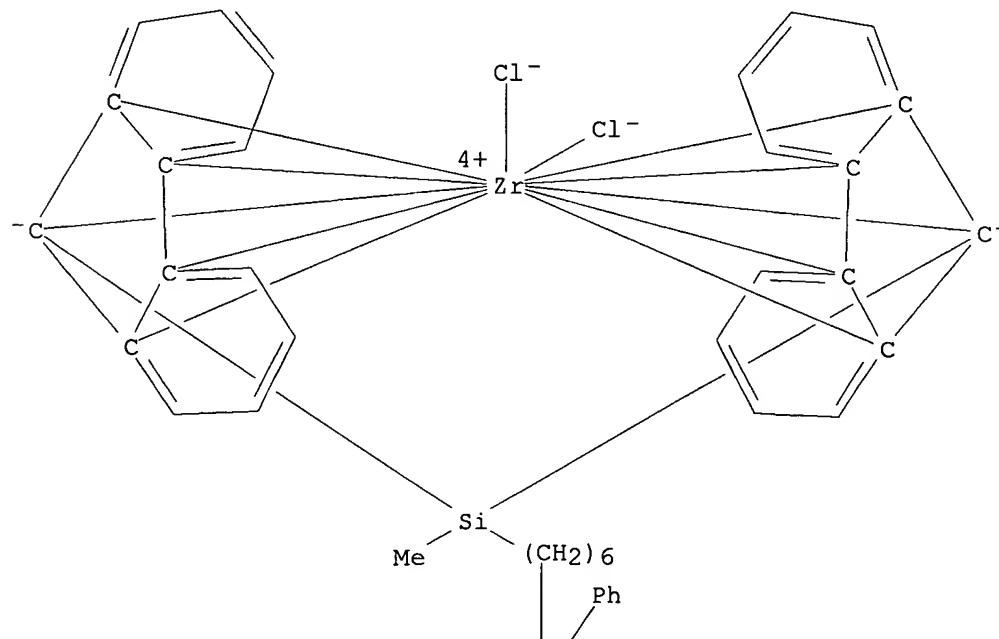
PAGE 2-A



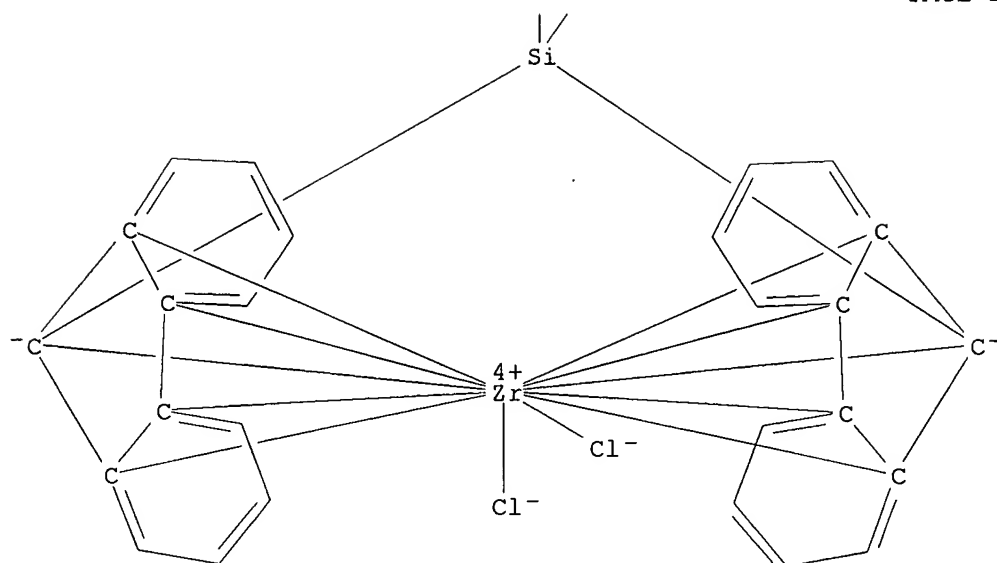
RN 617713-81-2 HCAPLUS

CN Zirconium, tetrachloro[μ -[η 10: η 10-di-9H-fluoren-9-ylidene(methylsilylidyne)-1,6-hexanediyl(phenylsilylidyne)di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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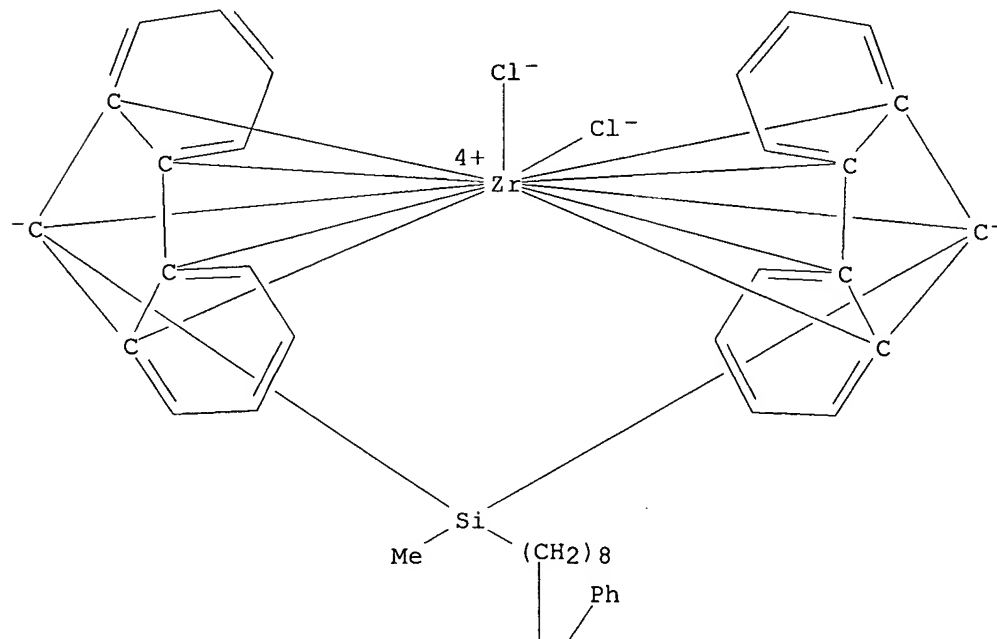
PAGE 2-A



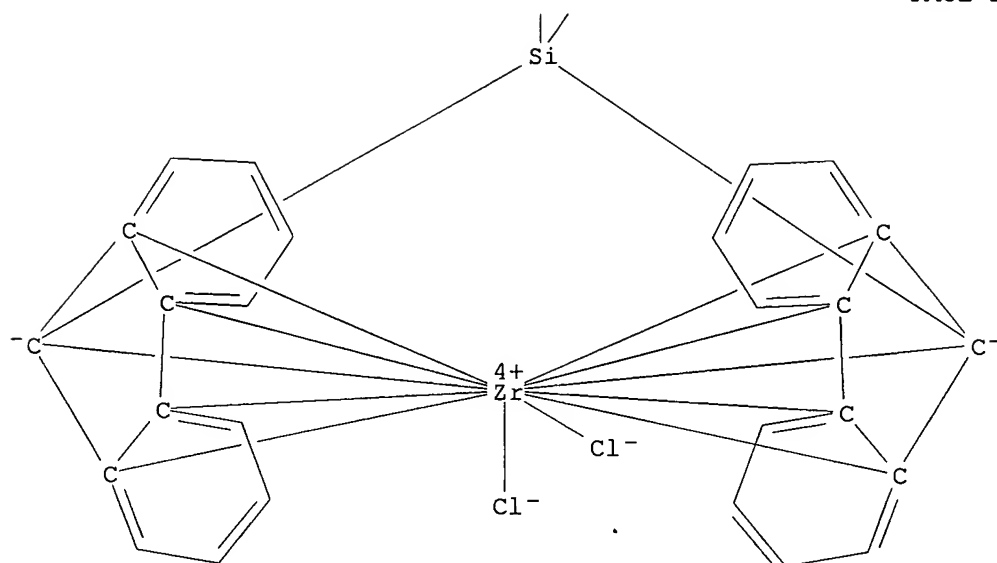
RN 617713-82-3 HCAPLUS

CN Zirconium, tetrachloro[μ-[η10:η10-di-9H-fluoren-9-ylidene(methylsilylidyne)-1,8-octanediyl(phenylsilylidyne)di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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RE.CNT 37 THERE ARE 37 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 2 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2003:162128 HCAPLUS
 DN 139:149953
 TI Dinuclear ansa zirconocene complexes as dual-site catalysts for the
 polymerization of ethylene
 AU Alt, Helmut G.; Ernst, Rainer
 CS Lehrstuhl fuer Anorganische Chemie II, Laboratorium fuer Anorganische
 Chemie der Universitaet Bayreuth, Bayreuth, D-95440, Germany
 SO Journal of Molecular Catalysis A: Chemical (2003), 195(1-2), 11-27
 CODEN: JMCCF2; ISSN: 1381-1169
 PB Elsevier Science B.V.
 DT Journal
 LA English
 AB A series of 21 dissym. dinuclear ansa zirconocene complexes and their
 ligand precursors were synthesized and characterized. After activation
 with methylaluminumoxane (MAO), these catalysts polymerize ethylene with
 different productivities and polydispersities in homogeneous and
 heterogeneous media. The tendencies of these series are shown.
 CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 29
 ST dinuclear ansa zirconocene complex catalyst polymn ethylene; polyethylene
 prepn ansa zirconocene complex catalyst
 IT Aluminoxanes
 RL: CAT (Catalyst use); USES (Uses)
 (Me, polymerization catalyst; synthesis of dinuclear ansa zirconocene
 complexes and their activity as dual-site catalysts for polymerization of
 ethylene in presence of)
 IT Polymerization catalysts
 (dinuclear ansa zirconocene complexes; synthesis of dinuclear ansa
 zirconocene complexes and their activity as dual-site catalysts for

- polymerization of ethylene in presence of)
- IT 124-70-9P, Methylvinylchlorosilane 1873-92-3P,
 AllylMethyldichlorosilane 3353-69-3P 15983-86-5P 16957-21-4P
 18147-27-8P 18395-97-6P 38958-24-6P 51346-62-4P 90054-19-6P
 572900-37-9P 572900-41-5P 572900-43-7P 572900-45-9P 572900-47-1P
 572900-49-3P 572900-51-7P 572900-54-0P 572900-56-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (intermediate; in synthesis of dinuclear ansa zirconocene complexes as
 dual-site catalysts for polymerization of ethylene)
- IT 503067-26-3P 572900-57-3P 572900-62-0P 572900-64-2P 572900-66-4P
 572900-68-6P 572900-70-0P 572900-72-2P 572900-74-4P 572900-76-6P
 572900-78-8P 572900-80-2P 572900-82-4P 572900-86-8P 572900-88-0P
 572900-90-4P 572900-92-6P 572900-94-8P 572900-96-0P 572900-98-2P
 572901-00-9P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (ligand precursor; in synthesis of dinuclear ansa zirconocene complexes
 as dual-site catalysts for polymerization of ethylene)
- IT 503067-28-5P 573718-50-0P 573718-51-1P 573718-52-2P 573718-54-4P
 573718-57-7P 573718-60-2P 573718-63-5P 573718-64-6P 573718-66-8P
 573718-68-0P 573718-69-1P 573718-70-4P 573718-71-5P 573718-72-6P
 573718-73-7P 573718-74-8P 573718-75-9P **573718-76-0P**
573718-77-1P 573718-78-2P
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
 PREP (Preparation); USES (Uses)
 (polymerization catalyst; synthesis of dinuclear ansa zirconocene complexes
 and their activity as dual-site catalysts for polymerization of ethylene)
- IT 75-54-7, Methyldichlorosilane 75-79-6, Methyltrichlorosilane 106-95-6,
 Allyl bromide, reactions 592-42-7, 1,5-Hexadiene 593-60-2, Bromoethene
 881-04-9, Fluorenyl lithium 1119-51-3, 4-Pentenyl bromide 1789-58-8,
 Ethyldichlorosilane 4984-82-1, Cyclopentadienyl sodium 5162-44-7,
 3-Butenyl bromide 10026-11-6, Zirconium tetrachloride 18191-45-2
 20669-47-0, Indenyl lithium
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reactant; in synthesis of dinuclear ansa zirconocene complexes as
 dual-site catalysts for polymerization of ethylene)
- IT 18053-74-2 18666-26-7 18769-00-1
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reference ligand precursor; in synthesis of dinuclear ansa zirconocene
 complexes as dual-site catalysts for polymerization of ethylene)
- IT 86050-32-0 119821-97-5
 RL: CAT (Catalyst use); USES (Uses)
 (reference polymerization catalyst; in synthesis of dinuclear ansa
 zirconocene
 complexes and their activity as dual-site catalysts for polymerization of
 ethylene)
- IT 148799-45-5P
 RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);
 PREP (Preparation); USES (Uses)
 (reference polymerization catalyst; in synthesis of dinuclear ansa
 zirconocene
 complexes and their activity as dual-site catalysts for polymerization of
 ethylene)
- IT 9002-88-4P, Polyethylene
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (synthesis of dinuclear ansa zirconocene complexes and their activity
 as dual-site catalysts for preparation of)

IT 573718-76-0P 573718-77-1P 573718-78-2P

RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation);

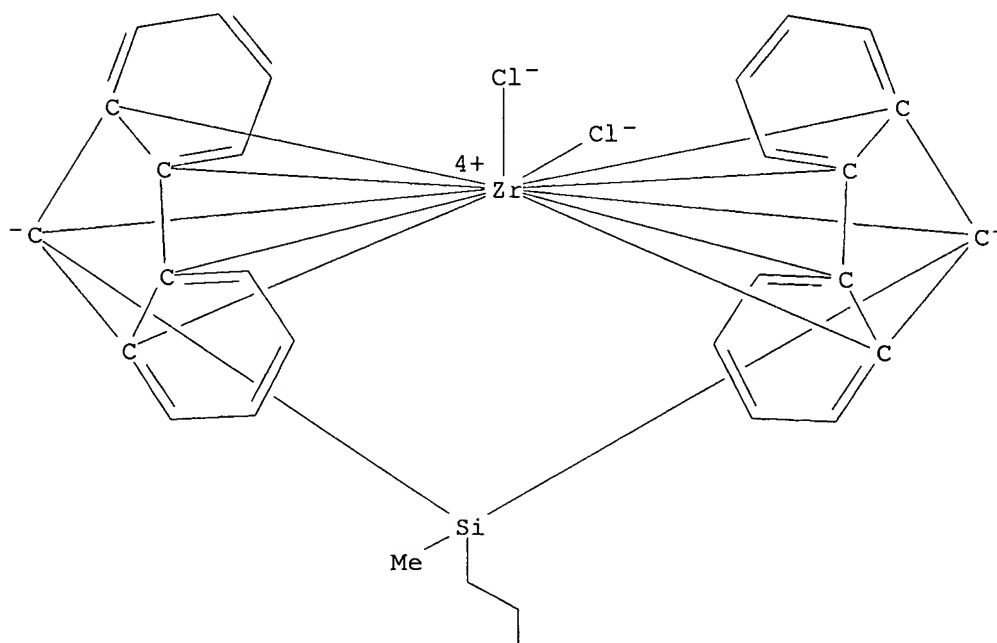
PREP (Preparation); USES (Uses)

(polymerization catalyst; synthesis of dinuclear ansa zirconocene complexes and their activity as dual-site catalysts for polymerization of ethylene)

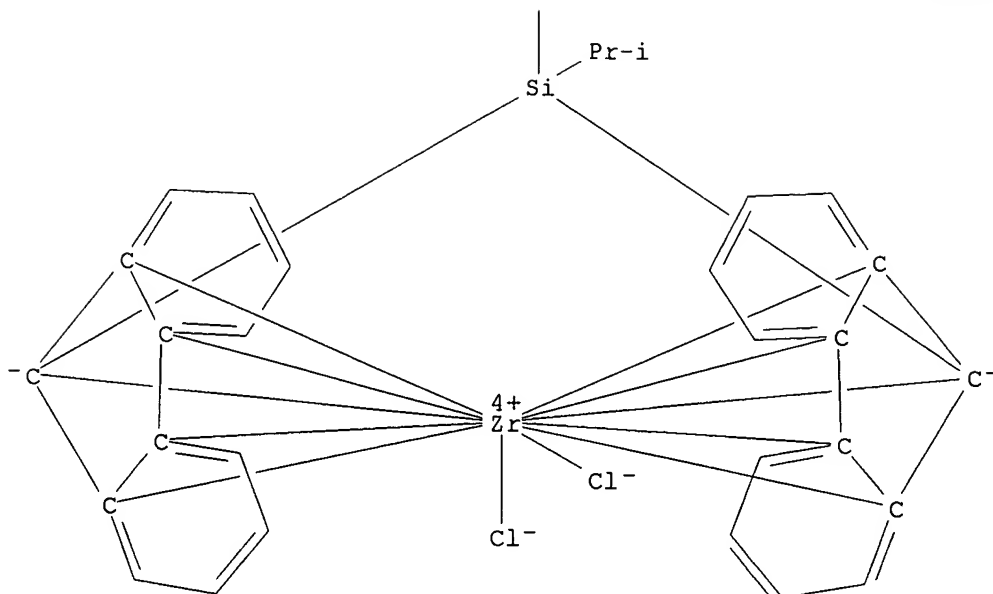
RN 573718-76-0 HCAPLUS

CN Zirconium, tetrachloro[μ -[η^5 : η^5 : η^5 : η^5 -[[2-[di-9H-fluoren-9-ylidene(1-methylethyl)silyl]ethyl]methylsilylene]di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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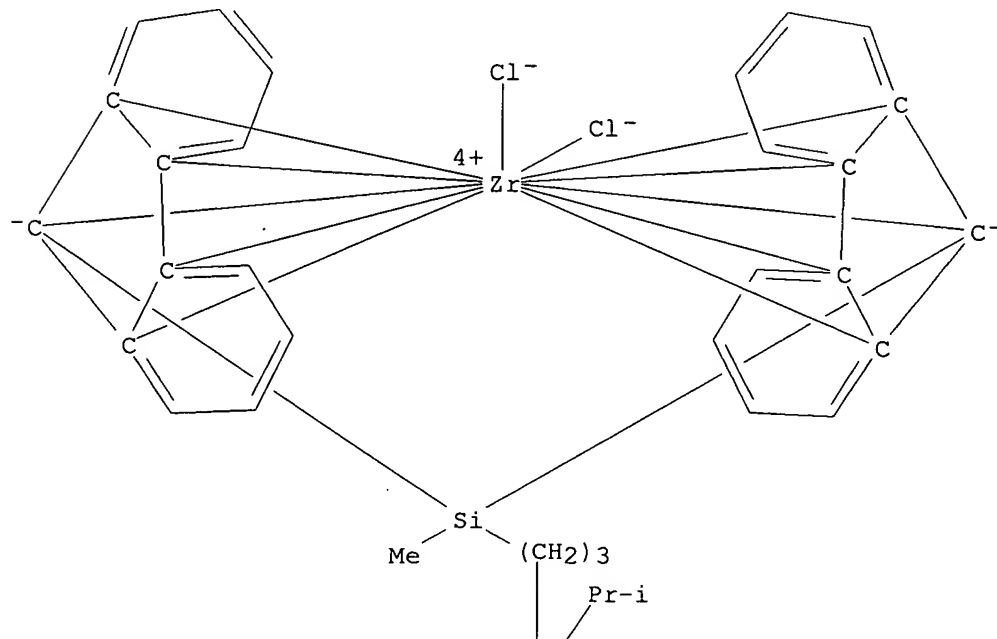
PAGE 2-A



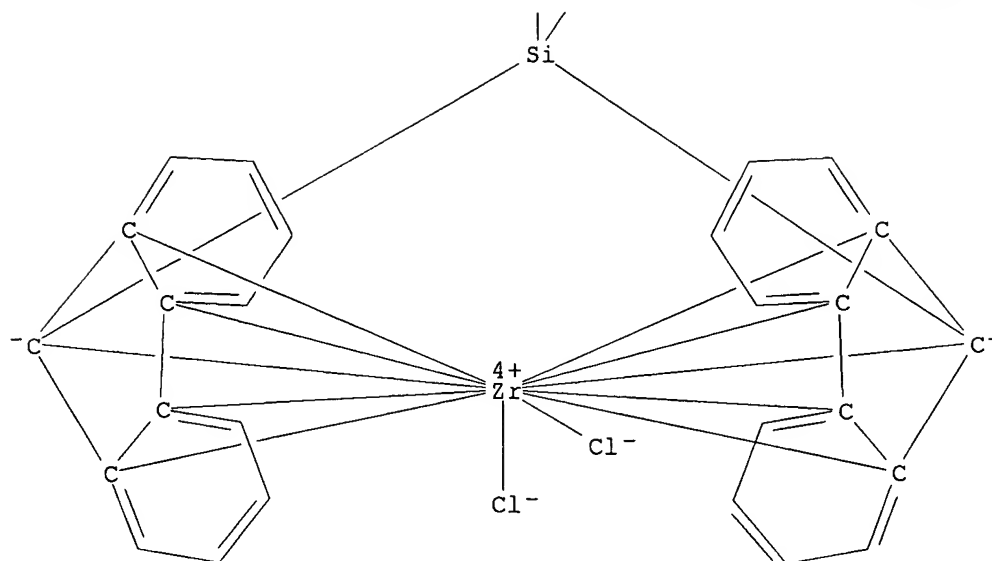
RN 573718-77-1 HCAPLUS

CN Zirconium, tetrachloro[μ -[η^5 : η^5 : η^5 : η^5 -[[3-[di-9H-fluoren-9-ylidene(1-methylethyl)silyl]propyl]methylsilylene]di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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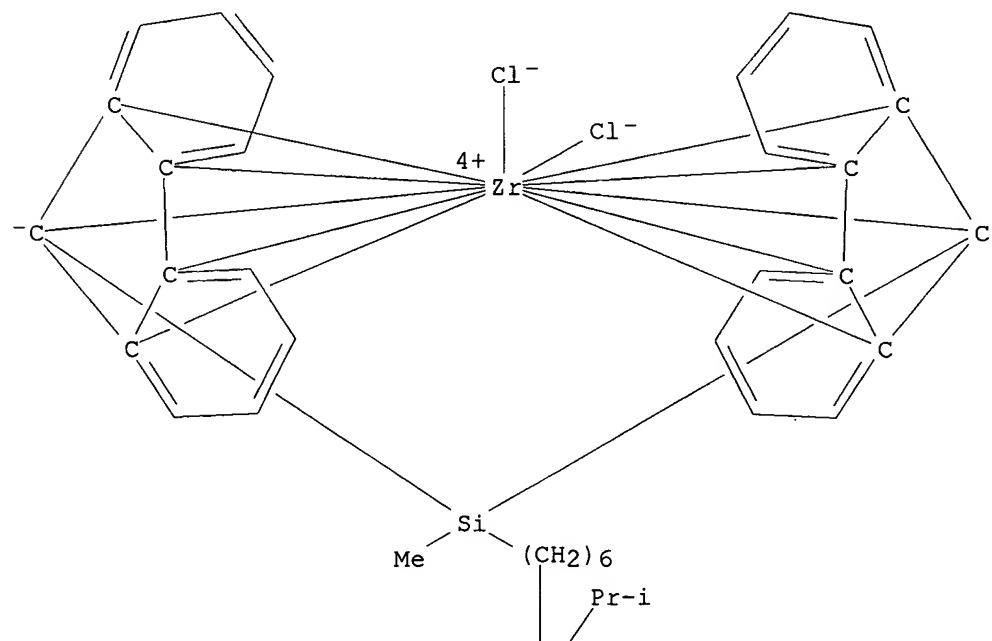
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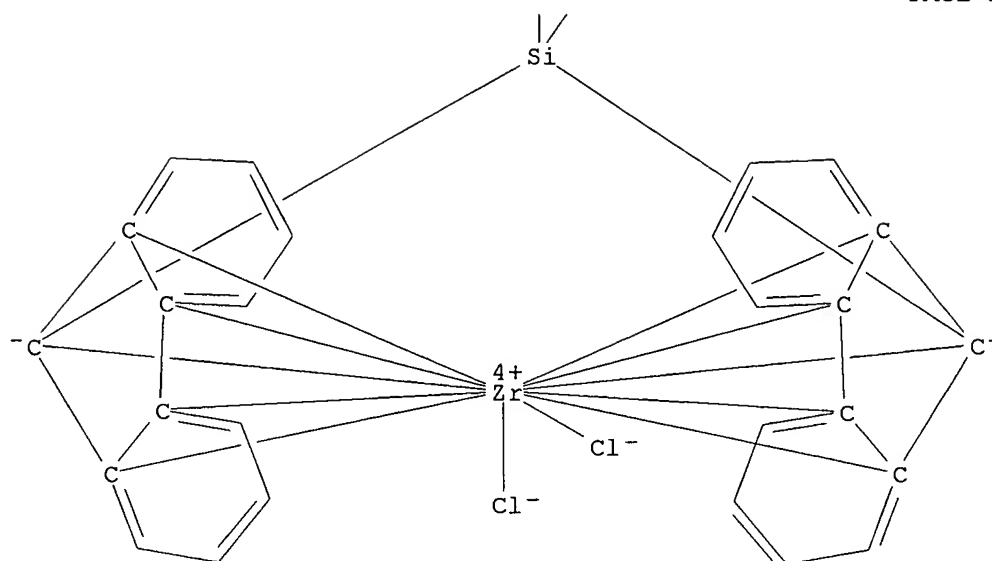
RN 573718-78-2 HCAPLUS

CN Zirconium, tetrachloro[μ -[η^5 : η^5 : η^5 : η^5 -[[6-[di-9H-fluoren-9-ylidene(1-methylethyl)silyl]hexyl)methylsilylene]di-9H-fluoren-9-ylidene]]di- (9CI) (CA INDEX NAME)

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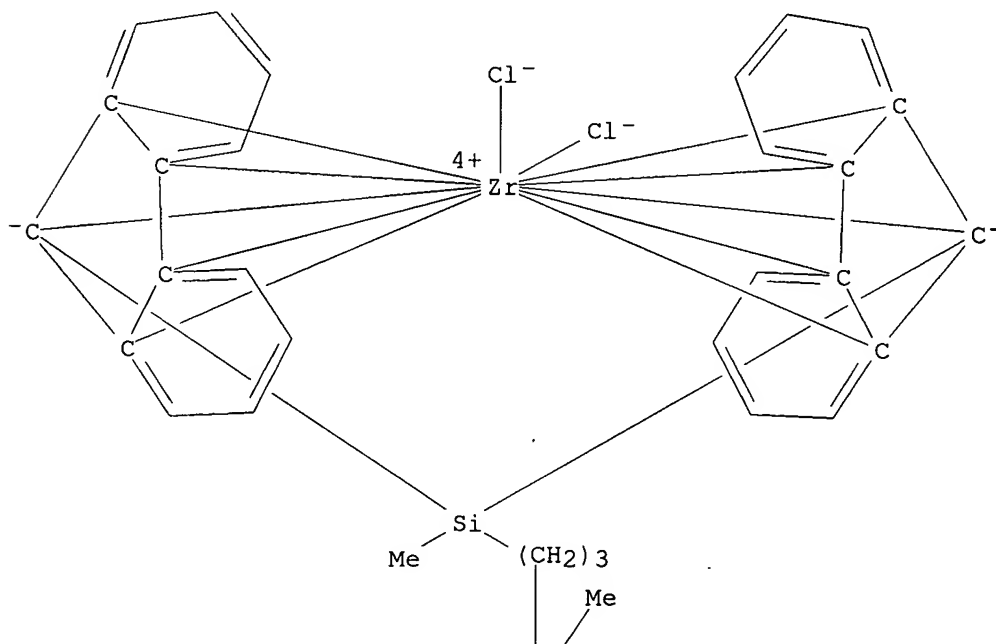
RE.CNT 24 THERE ARE 24 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 3 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:943783 HCAPLUS
DN 138:255546
TI Mono, di and tetranuclear ansa zirconocene complexes as catalysts for the homogeneous and heterogeneous polymerization of ethylene
AU Alt, Helmut G.; Ernst, Rainer; Bohmer, Ingrid
CS Laboratorium fur Anorganische Chemie der Universitat Bayreuth, Bayreuth, D-95440, Germany
SO Journal of Molecular Catalysis A: Chemical (2003), 191(2), 177-185
CODEN: JMCCF2; ISSN: 1381-1169
PB Elsevier Science B.V.
DT Journal
LA English
AB Mono, di and tetranuclear ansa zirconocene complexes have been synthesized and characterized. After activation with methylalumoxane (MAO) these catalysts were used for the homogeneous and heterogeneous polymerization of ethylene. The properties of the catalysts and the produced polymers were compared. The multinuclear catalysts show a different performance than the corresponding mononuclear derivs. The tetranuclear catalysts have the lowest activities because of steric crowding.
CC 35-3 (Chemistry of Synthetic High Polymers)
Section cross-reference(s): 29
ST zirconocene complex prepn catalyst ethylene polymn
IT Polymerization catalysts
(metallocene; mono, di and tetranuclear ansa zirconocene complexes as catalysts for polymerization of ethylene)
IT 86050-32-0P 148799-45-5P 503067-28-5P **503067-29-6P**
503067-32-1P 503067-33-2P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

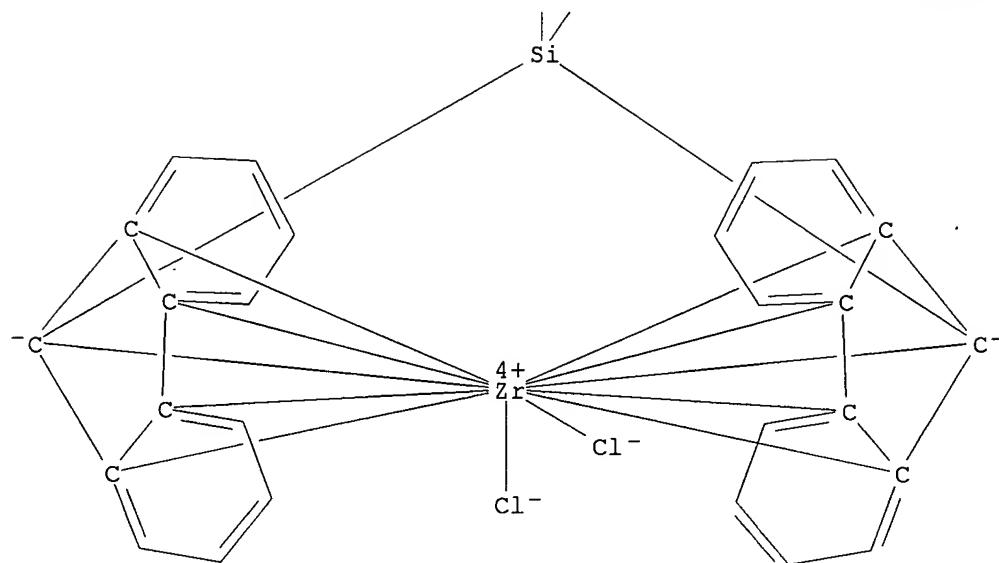
KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

- (mono, di and tetranuclear ansa zirconocene complexes as catalysts for polymerization of ethylene)
- IT 75-54-7, Dichloromethylsilane 75-78-5, Dichlorodimethylsilane
881-04-9, Fluorenyl lithium 1873-92-3, Allyldichloromethylsilane
4984-82-1 10026-11-6, Zirconium tetrachloride
RL: RCT (Reactant); RACT (Reactant or reagent)
(mono, di and tetranuclear ansa zirconocene complexes as catalysts for polymerization of ethylene)
- IT 16957-21-4P 67776-45-8P 503067-26-3P 503067-27-4P 503067-30-9P
503067-31-0P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(mono, di and tetranuclear ansa zirconocene complexes as catalysts for polymerization of ethylene)
- IT 9002-88-4P, Polyethylene
RL: SPN (Synthetic preparation); PREP (Preparation)
(mono, di and tetranuclear ansa zirconocene complexes as catalysts for polymerization of ethylene)
- IT **503067-29-6P**
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)
(mono, di and tetranuclear ansa zirconocene complexes as catalysts for polymerization of ethylene)
- RN 503067-29-6 HCAPLUS
- CN Zirconium, tetrachloro[μ -[(4a,4b,8a,9,9a- η :4'a,4'b,8'a,9',9'a- η :4''a,4''b,8''a,9'',9''a- η :4'''a,4'''b,8'''a,9''',9'''a- η)-[1,3-propanediylbis(methylsilylylidyne)]tetra-9H-fluoren-9-ylidene]]di-(9CI) (CA INDEX NAME)

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RE.CNT 26 THERE ARE 26 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 4 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 2002:552636 HCAPLUS
DN 137:272393
TI A homoleptic zirconium complex with four bulky η^2 -pyrazolato ligands
AU Roeder, Jens C.; Meyer, Franc; Pritzkow, Hans
CS Institut fuer anorganische Chemie, Georg-August-Universitaet Goettingen, Goettingen, D-37077, Germany
SO Zeitschrift fuer Naturforschung, B: Chemical Sciences (2002), 57(7), 773-776
CODEN: ZNBSEN; ISSN: 0932-0776
PB Verlag der Zeitschrift fuer Naturforschung
DT Journal
LA English
AB Two new tetrakis(η^2 -pyrazolato)zirconium complexes were prepared from the reaction of $Zr(CH_2Ph)_4$ with bulky pyrazolate ligands bearing indenylmethyl (HL1 = 3,5-bis(inden-3-ylmethyl)pyrazole) or fluorenylmethyl (HL2 = 3,5-bis(fluoren-9-ylmethyl)pyrazole) substituents, resp. $Zr(L_2)_4$ was analyzed by x-ray crystallog., which represents the 1st structural characterization of a homoleptic η^2 -pyrazolato zirconium compound
CC 78-7 (Inorganic Chemicals and Reactions)
Section cross-reference(s): 75
ST zirconium homoleptic pyrazolato complex prepn structure;
indenylmethylpyrazolate zirconium homoleptic complex prepn; crystal structure zirconium fluorenylmethylpyrazolate homoleptic
IT Crystal structure
Molecular structure
(of homoleptic zirconium bis(fluorenylmethyl)pyrazolato complex)
IT **462657-28-9P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure)
IT 462657-27-8P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 331722-53-3, 3,5-Bis(fluoren-9-ylmethyl)pyrazole
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for preparation of homoleptic zirconium
bis(fluorenylmethyl)pyrazolato complex)

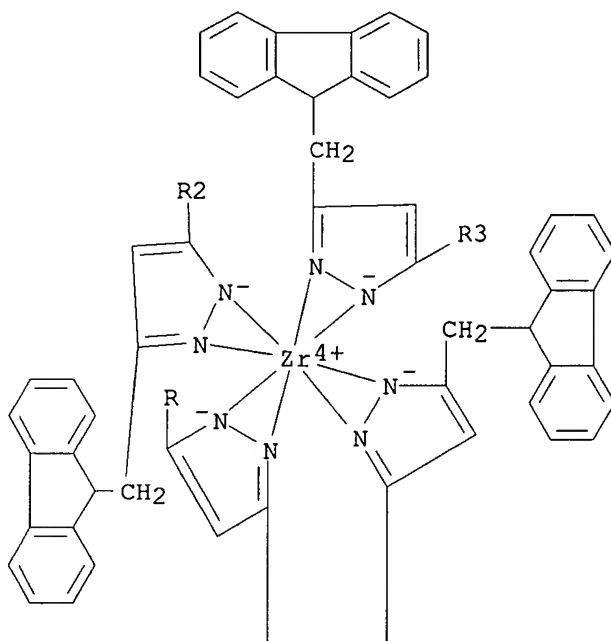
IT 331722-55-5, 3,5-Bis(inden-3-ylmethyl)pyrazole
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for preparation of homoleptic zirconium
bis(indenylmethyl)pyrazolato complex)

IT 24356-01-2, Tetrabenzylzirconium
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactant for preparation of homoleptic zirconium
bis(indenylmethyl/fluorenylmethyl)pyrazolato complexes)

IT **462657-28-9P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure)

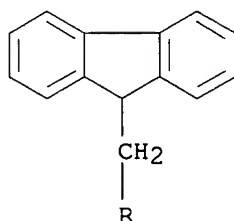
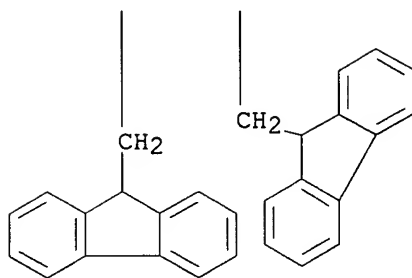
RN 462657-28-9 HCAPLUS

CN Zirconium, tetrakis[3,5-bis(9H-fluoren-9-ylmethyl)-1H-pyrazolato-
κN1,κN2]-, (DD-8-111''1''1''1''1''1''1''1''1'')- (9CI) (CA INDEX NAME)

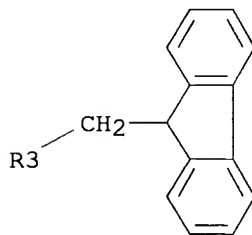
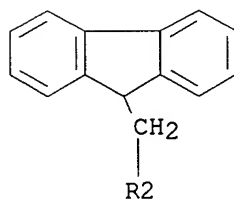


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RE.CNT 22 THERE ARE 22 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 5 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2002:31464 HCAPLUS

DN 136:86231

TI Metallocenes with a bridged bisindenyl ligand for catalyzing olefin polymerization

IN Kuchta, Matthew C.; Stehling, Udo M.; Li, Robert T.; Haygood, William T.; Burkhardt, Terry J.

Applicants

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

PA Exxonmobil Chemical Patents, Inc., USA

SO PCT Int. Appl., 66 pp.

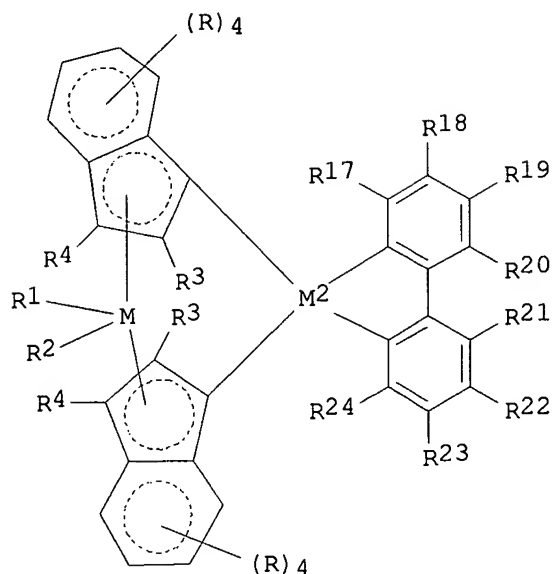
CODEN: PIXXD2

DT Patent

LA English

FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2002002575	A1	20020110	WO 2001-US16425	20010521
	W: BR, CA, CN, IN, JP, KR, SG				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
	US 6376407	B1	20020423	US 2000-619749	20000719
	US 6376409	B1	20020423	US 2000-619764	20000719
	US 6376411	B1	20020423	US 2000-620302	20000719
	US 6376413	B1	20020423	US 2000-620359	20000719
	US 6380120	B1	20020430	US 2000-619750	20000719
	US 6380121	B1	20020430	US 2000-619751	20000719
	US 6380334	B1	20020430	US 2000-619757	20000719
	US 6380122	B1	20020430	US 2000-620046	20000719
	US 6380330	B1	20020430	US 2000-620198	20000719
	US 6380123	B1	20020430	US 2000-620341	20000719
	US 6380331	B1	20020430	US 2000-620613	20000719
	US 6414095	B1	20020702	US 2000-620303	20000719
	EP 1294733	A1	20030326	EP 2001-937633	20010521
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI, CY, TR				
	US 2002193242	A1	20021219	US 2002-66221	20020131
	US 2003073568	A1	20030417	US 2002-62702	20020131
PRAI	US 2000-215459P	P	20000630		
	US 2000-215597P	P	20000630		
	US 2000-619749	A	20000719		
	US 2000-619750	A	20000719		
	US 2000-619751	A	20000719		
	US 2000-619757	A	20000719		
	US 2000-619764	A	20000719		
	US 2000-620046	A	20000719		
	US 2000-620198	A	20000719		
	US 2000-620302	A	20000719		
	US 2000-620303	A	20000719		
	US 2000-620341	A	20000719		
	US 2000-620359	A	20000719		
	US 2000-620613	A	20000719		
	WO 2001-US16425	W	20010521		
OS	MARPAT 136:86231				
GI					



AB Polymerization of olefins, especially propylene, utilizes catalytic (supported) metallocenes I where M = Group 4, 5, or 6 preferably, Zr, Hf and Ti; R13 bridge where R17-24 = H, C1-10-alkyl, alkoxy, aryl, aryloxy, alkenyl, arylalkyl, alkylaryl, arylalkenyl, OH, halogen, or ≥ 2 adjacent R17-24, including R20 and R21, together with the atoms connecting them form ≥ 1 rings; M2 = C, Si, Ge or Sn, optionally substituted on the remaining indenyl rings; R1, R2 = H, C1-10-alkyl, alkoxy, aryl, aryloxy, alkenyl, arylalkyl, alkylaryl, arylalkenyl, OH, halogen, or R1, R2 are conjugated diene; R3, R4 = H, halogen, C1-10-alkyl, alkoxy, aryl, aryloxy, alkenyl, arylalkyl, alkylaryl, arylalkenyl, NR2, SR, OR, OSiR3 or PR2, where R = halogen, C1-10-alkyl or C6-10-aryl. Thus, C3H6 was polymerized in the presence of 1.2 mg rac-9-silafluorenebis(2-methylindenyl)zirconium di-Me, triisobutylaluminum scavenger and 1.98 mg trityltetrakis(perfluorophenyl)borate activator at 60° to give isotactic polypropylene having m.p. 148.7°.

IC ICM C07F017-00

ICS C08F004-642; C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 29

ST propylene polymer manuf high melt point; metallocene polymn catalyst olefin; Group 4 metallocene polymn catalyst

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)

(Me; metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)

IT Polymerization catalysts

(metallocene; metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)

IT Ethylene-propylene rubber

RL: IMF (Industrial manufacture); PREP (Preparation)

(metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)

IT 9010-79-1P

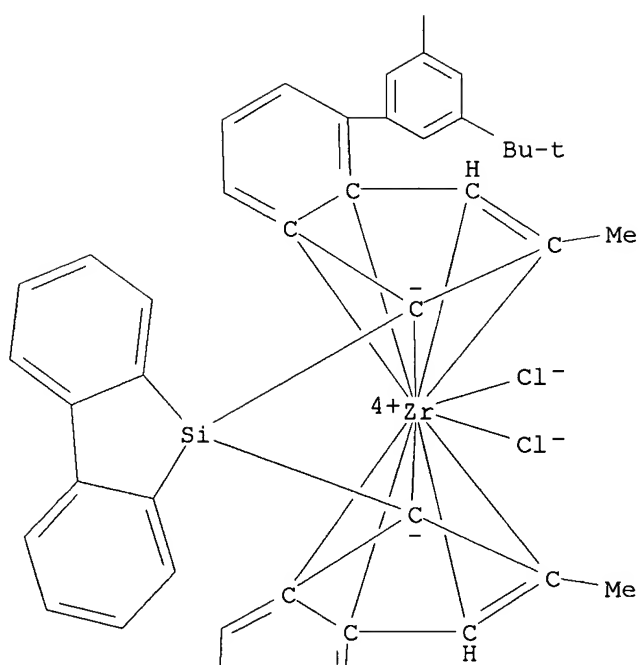
RL: IMF (Industrial manufacture); PREP (Preparation)

- (ethylene-propylene rubber, metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)
- IT 100-99-2, Triisobutylaluminum, uses 7631-86-9, Silica, uses 136040-19-2
 RL: CAT (Catalyst use); USES (Uses)
 (metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)
- IT **387392-13-4P 387392-15-6P 387392-16-7P 387392-20-3P**
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)
- IT 9010-79-1P, Ethylene/propylene copolymer 25085-53-4P, Isotactic Polypropylene
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)
- IT 13029-09-9P, 2,2'-Dibromobiphenyl 18030-58-5P, 9,9-Dichloro-9-silafluorene 354822-07-4P 354822-09-6P 386267-20-5P 387367-76-2P 387367-78-4P 387367-82-0P 387392-18-9P
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent)
 (metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)
- IT 109-72-8, n-Butyl lithium, reactions 583-53-9, o-Dibromobenzene 10026-04-7, Silicon chloride (SiCl₄) 10026-11-6, Zirconium chloride (ZrCl₄) 34696-73-6, 3,5-Dimethylphenylmagnesium bromide 56423-64-4, 2-Methylindenyllithium 204324-71-0 210628-07-2 354589-68-7
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)
- IT **387392-13-4P 387392-15-6P 387392-16-7P 387392-20-3P**
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation); USES (Uses)
 (metallocenes with a bridged 4-phenylindenyl ligand for catalyzing olefin polymerization)
- RN 387392-13-4 HCAPLUS
- CN Zirconium, dichloro[rel-(1R,1'R)-9H-9-silafluoren-9-ylidenebis[(1,2,3,3a,7a-η)-4-[3,5-bis(1,1-dimethylethyl)phenyl]-2-methyl-1H-inden-1-ylidene]]- (9CI) (CA INDEX NAME)

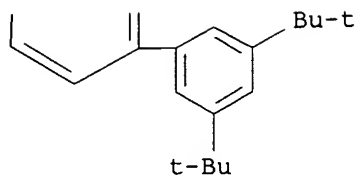
PAGE 1-A

t-Bu

PAGE 2-A



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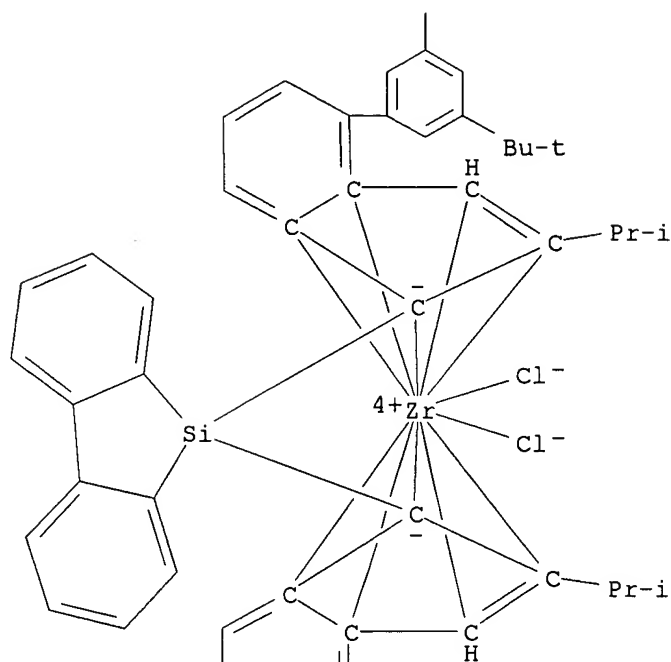
RN 387392-15-6 HCAPLUS

CN Zirconium, dichloro[rel-(1R,1'R)-9H-9-silafluoren-9-ylidenebis[(1,2,3,3a,7a-η)-4-[3,5-bis(1,1-dimethylethyl)phenyl]-2-(1-methylethyl)-1H-inden-1-ylidene]]- (9CI) (CA INDEX NAME)

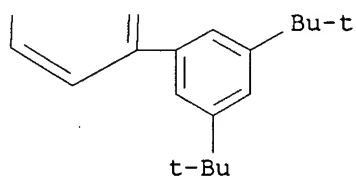
PAGE 1-A

t-Bu

PAGE 2-A



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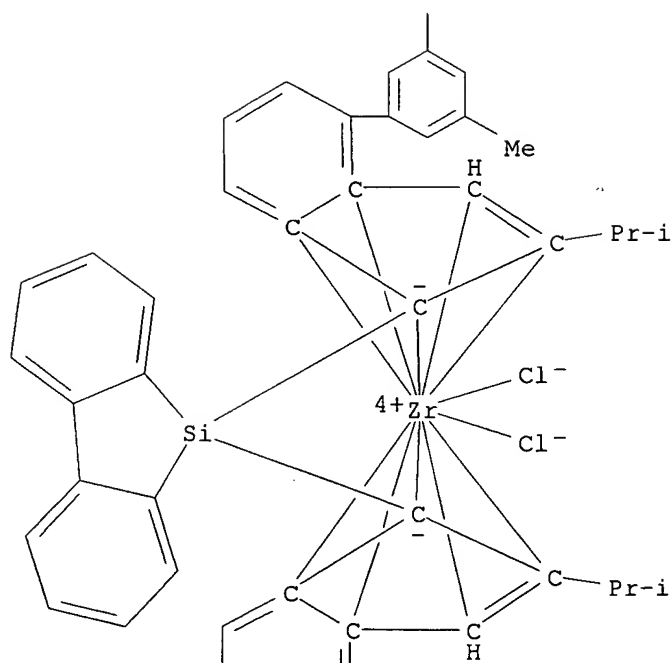


RN 387392-16-7 HCAPLUS
CN Zirconium, dichloro[9H-9-silafluoren-9-ylidenebis[(1,2,3,3a,7a-η)-4-(3,5-dimethylphenyl)-2-(1-methylethyl)-1H-inden-1-ylidene]]- (9CI) (CA INDEX NAME)

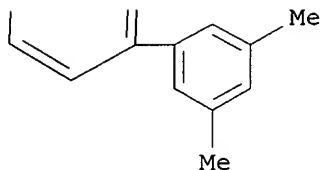
PAGE 1-A

Me

PAGE 2-A



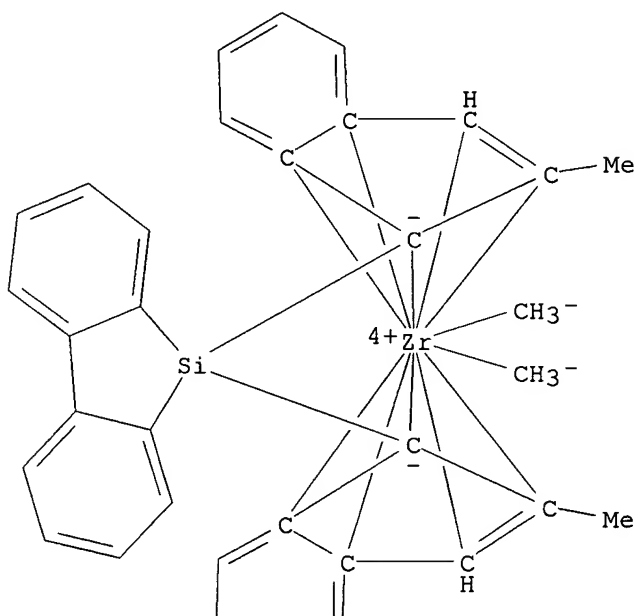
PAGE 3-A



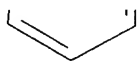
RN 387392-20-3 HCAPLUS

CN Zirconium, dimethyl[rel-(1R,1'R)-9H-9-silafluoren-9-ylidenebis[(1,2,3,3a,7a-η)-2-methyl-1H-inden-1-ylidene]]- (9CI) (CA INDEX NAME)

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PAGE 2-A



RE.CNT 1 THERE ARE 1 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 6 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 2000:217996 HCAPLUS

DN 132:329071

TI Titanium(IV) complexes of the crystallographically characterized
fluorene-Schiff base N-2-fluorenyl(salicylideneimine) and related bi- and

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

tetradentate ligands

AU Coles, Simon J.; Hursthouse, Michael B.; Kelly, David G.; Toner, Andrew J.
 CS Department of Chemistry, University of Southampton, Southampton, SO17 1BJ,
 UK

SO Polyhedron (2000), 19(2), 177-183
 CODEN: PLYHDE; ISSN: 0277-5387

PB Elsevier Science Ltd.
 DT Journal
 LA English

AB Schiff base ligands were prepared by the condensation of 2-aminofluorene with salicylaldehyde (1, flusalH) or 3-methoxy-2-hydroxybenzaldehyde (2, MeOfusalH). Compound 1 reacts with TiCl₄ in a 1:1 stoichiometry to afford [TiCl₃(flusal)] (3) and in a 2:1 ratio to yield [TiCl₄(flusalH)₂] (4). The reaction of excess TiBz₄ with compound 1 gave the octahedral Ti(IV) complex [Ti(flusal)₂(flusalaBz)₂] (5). Crystallog. and spectroscopic data for the latter indicate a complex containing two Schiff base ligands present as conventional N,O chelates and a further two ligands in which the C=N function is reduced by the addition of benzyl and H moieties producing an O-bound species with pendant amine. The single crystal x-ray diffraction structure of compound 1 was obtained and compared with the published data for compound 5. Similar ligand alkylation to that observed in compound 5 is also achieved by the reaction of organolithium reagents with compds. 1 and 2; the reaction of PhLi and compound 2 followed by aqueous hydrolysis affords MeOfusalPhH (6). Although reactivity does occur between TiCl₄ and compound 6, the products could not be fully characterized. Thus tetradentate reduced Schiff base ligands were synthesized by the reaction of salenH₂ with MeLi or PhLi, giving salenaMe₂H₂ (7) and salenaPh₂H₂ (8), resp. Reaction of compound 8 and TiCl₄ affords the quadruply deprotonated amido complex [Ti(salenamidoPh₂)] (9), which hydrolyzes in air to the μ-oxo amine complex [Ti(salenaPh₂)O] (10).

CC 78-7 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 75

ST crystal structure fluorenylsalicylideneimine Schiff base; titanium fluorenylsalicylideneimine deriv complex prepn

IT Crystal structure
 Molecular structure
 (of fluorenyl(salicylideneimine) Schiff base)

IT 94-93-9, N,N'-Ethylenebis(salicylideneamine) 917-54-4, Methyllithium
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of ethylenebis(methylsalicylaldamine))

IT 148-53-8, 3-Methoxy-2-hydroxybenzaldehyde
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of fluorenyl(methoxysalicylideneimine))

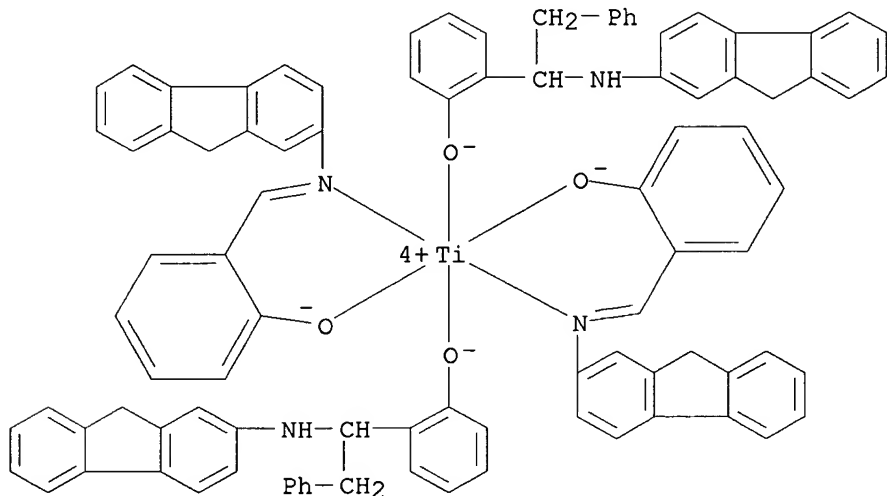
IT 591-51-5, Phenyllithium
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of fluorenyl(phenylmethoxysalicylideneamine) and ethylenebis(phenylsalicylaldamine))

IT 90-02-8, reactions 153-78-6, 2-Aminofluorene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of fluorenyl(salicylideneimine) and derivs. and their titanium complexes)

IT 17520-19-3, Tetrabenzyltitanium
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (for preparation of titanium complex with fluorenyl(salicylideneimine) and its benzyl derivative)

IT 266684-54-2P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT

(Reactant or reagent)
 (polymeric; preparation and hydrolysis in air of)
 IT 266684-53-1P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and complexation with titanium)
 IT 266684-49-5P
 RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and reaction with phenyllithium)
 IT 91915-31-0P **260051-25-0P** 266684-50-8P 266684-51-9P
 266684-52-0P 266684-55-3P
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 IT 13924-55-5P, N-2-Fluorenyl(salicylideneimine)
 RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP
 (Preparation); RACT (Reactant or reagent)
 (preparation, crystal structure and reactant for preparation of titanium
 complexes with fluorenyl(salicylideneimine) Schiff base and its
 derivs.)
 IT **260051-25-0P**
 RL: SPN (Synthetic preparation); PREP (Preparation)
 (preparation of)
 RN 260051-25-0 HCAPLUS
 CN Titanium, bis[2-[1-(9H-fluoren-2-ylamino)-2-phenylethyl]phenolato- κ O]bis[2-[(9H-fluoren-2-ylimino- κ N)methyl]phenolato- κ O]-
 , (OC-6-13)- (9CI) (CA INDEX NAME)



RE.CNT 47 THERE ARE 47 CITED REFERENCES AVAILABLE FOR THIS RECORD
 ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 7 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 2000:64298 HCAPLUS
 DN 132:194439
 TI Schiff base insertion in titanium alkyls; reduction of imine functions by
 benzyl addition
 AU Coles, Simon J.; Hursthouse, Michael B.; Kelly, David G.; Toner, Andrew
 J.; Walker, Neil M.

CS Department of Chemistry, University of Southampton, Southampton, SO17 1BJ,
UK

SO Canadian Journal of Chemistry (1999), 77(12), 2095-2098
CODEN: CJCHAG; ISSN: 0008-4042

PB National Research Council of Canada

DT Journal

LA English

AB TiBz4 reacts with N-2-fluorenyl(salicylideneimine) to afford a crystallog.
characterized titanium(IV) complex containing two conventional bidentate
Schiff base ligands and two O-bound ligands in which the imine function
has been reduced by the addition of benzyl and hydrogen moieties.

CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 75

ST Schiff base insertion titanium alkyl; redn imine benzyl; fluorenyl
salicylideneimine benzyltitanium complex prepn crystal mol structure

IT Insertion reaction
(Schiff base insertion in titanium alkyls and reduction of imine functions
by benzyl addition)

IT Schiff bases
RL: RCT (Reactant); RACT (Reactant or reagent)
(Schiff base insertion in titanium alkyls and reduction of imine functions
by benzyl addition)

IT Crystal structure
Molecular structure
(of fluorenyl salicylideneimine benzyltitanium complex)

IT **260051-26-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

IT **260051-25-0P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mol. structure of)

IT 13924-55-5P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
(Reactant or reagent)
(preparation and reaction with tetrabenzyltitanium)

IT 17520-19-3, Tetrabenzyltitanium
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with fluorenyl(salicylideneimine))

IT **260051-26-1P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

RN 260051-26-1 HCAPLUS

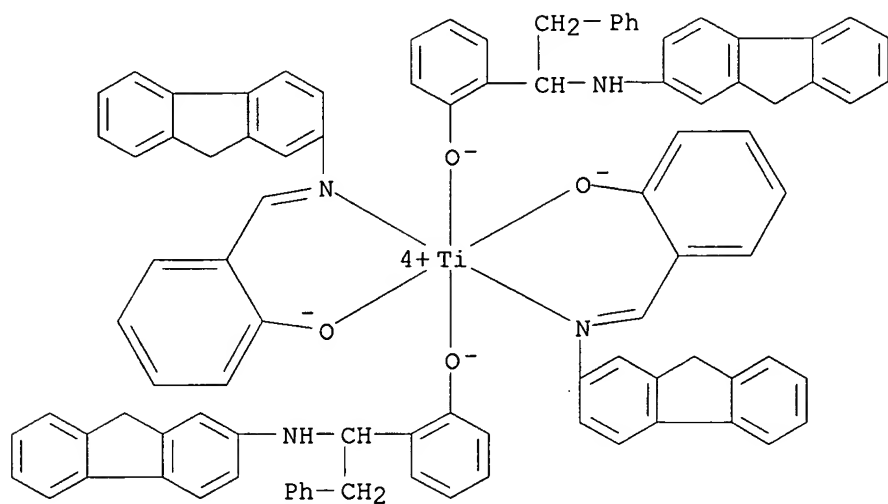
CN Titanium, bis[2-[1-(9H-fluoren-2-ylamino)-2-phenylethyl]phenolato-
κO]bis[2-[(9H-fluoren-2-ylimino-κN)methyl]phenolato-κO]-
, (OC-6-13)-, compd. with methylbenzene (2:1) (9CI) (CA INDEX NAME)

CM 1

CRN 260051-25-0

CMF C94 H72 N4 O4 Ti

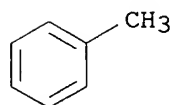
CCI CCS



CM 2

CRN 108-88-3

CMF C7 H8

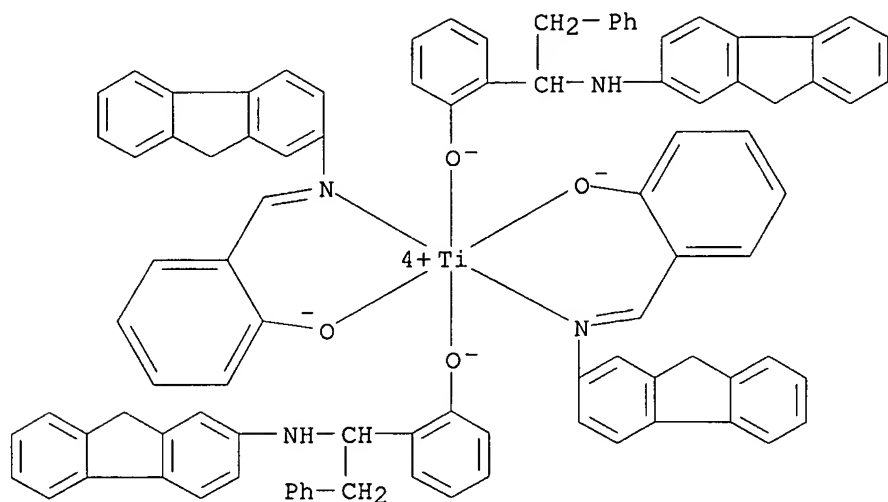


IT 260051-25-0P

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and mol. structure of)

RN 260051-25-0 HCAPLUS

CN Titanium, bis[2-[1-(9H-fluoren-2-ylamino)-2-phenylethyl]phenolato- κ O]bis[2-[(9H-fluoren-2-ylimino- κ N)methyl]phenolato- κ O]-
, (OC-6-13)- (9CI) (CA INDEX NAME)



RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 8 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:764363 HCAPLUS
DN 132:12586
TI Catalyst system for olefin polymerization
IN Bohnen, Hans; Goeres, Markus; Fritze, Cornelia
PA Aventis Research und Technologies G.m.b.H. und Co. K.-G., Germany
SO Ger. Offen., 18 pp.
CODEN: GWXXBX
DT Patent
LA German
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 19823168	A1	19991125	DE 1998-19823168	19980523
	WO 9961488	A1	19991202	WO 1999-EP3415	19990518
	W: BR, CN, JP, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	BR 9910675	A	20010130	BR 1999-10675	19990518
	EP 1086146	A1	20010328	EP 1999-925004	19990518
	R: BE, DE, ES, FR, GB, IT, NL, FI				
	JP 2002516359	T2	20020604	JP 2000-550891	19990518
PRAI	DE 1998-19823168	A	19980523		
	WO 1999-EP3415	W	19990518		
OS	MARPAT 132:12586				
AB	Catalyst systems containing ≥ 1 metallocene, ≥ 1 Lewis base, a porous inorg. or organic support, ≥ 1 organoborane compound, and, optionally, an organometallic compound can be used for the polymerization of olefins without the use of the excess aluminosilicates usually needed as cocatalysts and still attain a high catalyst activity and good polymer morphol. A significant increase of the catalyst activity is produced by the addition of hydrogen during polymerization. Thus, treatment of trimethylaluminum with pentafluoroboric acid in toluene yielded a clear bright yellow solution of bis(dimethylalumoxy)pentafluorophenylborane which was then				

dropped into a toluene suspension of SiO₂ which had been pretreated with N,N-dimethylaniline. The blue colored support material obtained by drying the above suspension was then mixed with toluene solns. of dimethylsilandiylbis(2-methyl-4-phenylindenyl)zirconium di-Me and trimethylaluminum and the solvent was evaporated to give a rose-colored free-flowing powder. Propylene was polymerized using this powder and triisobutylaluminum as catalysts. No deposits occurred on the inner wall of the polymerization reactor. The catalyst activity was 26 kg polypropylene/g metallocene/h.

IC ICM C08F004-52

ICS C08F004-646; C08F004-642; C08F010-00

CC 35-3 (Chemistry of Synthetic High Polymers)

ST metallocene polymn catalyst olefin; aluminum boron catalyst polymn olefin; propylene metallocene polymn catalyst; polypropylene metallocene polymn catalyst

IT Polymerization catalysts

(metallocene catalyst systems for polymerization of olefins without use of aluminoxanes)

IT 7631-86-9, Silica, uses

RL: CAT (Catalyst use); USES (Uses)

(catalyst support; metallocene catalyst systems for polymerization of

olefins

without use of aluminoxanes)

IT 9003-07-0P, Polypropylene

RL: IMF (Industrial manufacture); PREP (Preparation)

(metallocene catalyst systems for polymerization of olefins without use of aluminoxanes)

IT 91-66-7, N,N-Diethylaniline 96-10-6, Diethylaluminum chloride, uses
 97-93-8, Triethylaluminum, uses 101-83-7, Dicyclohexylamine 102-67-0,
 Tripropylaluminum 102-82-9, Tributylamine 110-86-1, Pyridine, uses
 121-44-8, Triethylamine, uses 121-69-7, N,N-Dimethylaniline, uses
 290-37-9, Pyrazine 603-35-0, Triphenylphosphine, uses 865-37-2,
 Dimethylaluminum hydride 871-27-2, Diethylaluminum hydride 1070-00-4,
 Trioctylaluminum 1116-40-1, Triisobutylamine 1116-70-7,
 Tributylaluminum 1116-73-0, Trihexylaluminum 1184-58-3,
 Dimethylaluminum chloride 1291-32-3 1779-25-5, Diisobutylaluminum
 chloride 2397-67-3, Triisopropylaluminum 3424-21-3, Triisopropylamine
 5997-68-2 12075-68-2, Ethylaluminum sesquichloride 12542-85-7,
 Methylaluminum sesquichloride 13021-15-3, N,N-2,4,6-Pentamethylaniline
 18315-70-3, Diisopropylaluminum hydride 26834-21-9 35655-30-2
 45481-27-4 73364-10-0 77076-14-3 119445-92-0 119821-97-5
 135072-61-6 135571-35-6 135571-36-7 143278-90-4 143278-92-6
 149237-92-3 149342-08-5 152071-12-0 152881-64-6 152881-65-7
 152881-66-8 152881-67-9 158238-79-0 158238-80-3 158515-16-3
 161442-55-3 162426-41-7 162426-43-9 162857-08-1 163403-18-7
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 238414-81-8 238414-82-9 238414-83-0 238414-84-1 **238414-87-4**

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238415-05-9 238415-07-1 238415-09-3 238415-11-7 238415-13-9

238415-15-1 238415-17-3 238415-18-4 238415-19-5 238415-20-8

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238415-26-4 238415-27-5 238415-28-6 238432-64-9 238432-65-0

238432-66-1 238432-67-2 238432-68-3 238432-69-4 238432-70-7
238432-71-8

RL: CAT (Catalyst use); USES (Uses)

(polymerization catalyst; metallocene catalyst systems for polymerization of olefins

without use of aluminoxanes)

IT 220402-86-8P 220402-87-9P 222981-64-8P 238414-63-6P

RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation);
USES (Uses)

(polymerization catalyst; metallocene catalyst systems for polymerization of olefins

without use of aluminoxanes)

IT 75-24-1, Trimethylaluminum

RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES
(Uses)

(reactant and polymerization catalyst; metallocene catalyst systems for polymerization of olefins without use of aluminoxanes)

IT 100-99-2, Triisobutylaluminum, reactions 1582-24-7 2118-02-7,

Bis(pentafluorophenyl)borinic acid 2622-89-1

RL: RCT (Reactant); RACT (Reactant or reagent)

(reactant; in preparation of organobor aluminum compds. for use as catalyst components for polymerization of olefins)

IT **238414-87-4 238414-90-9 238414-92-1**

RL: CAT (Catalyst use); USES (Uses)

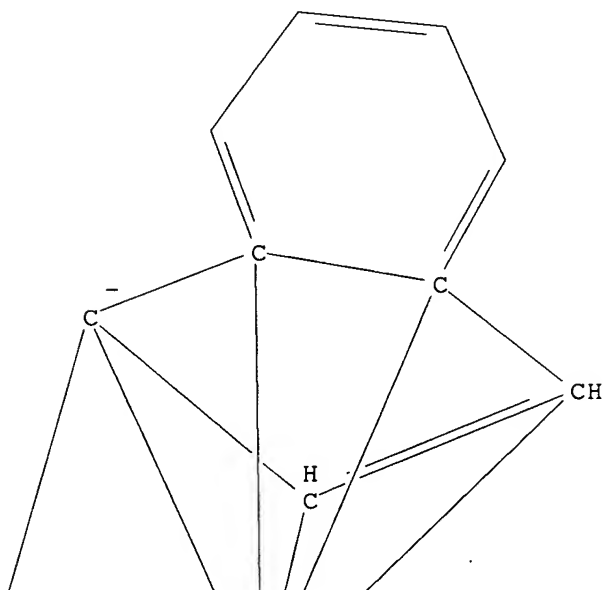
(polymerization catalyst; metallocene catalyst systems for polymerization of olefins

without use of aluminoxanes)

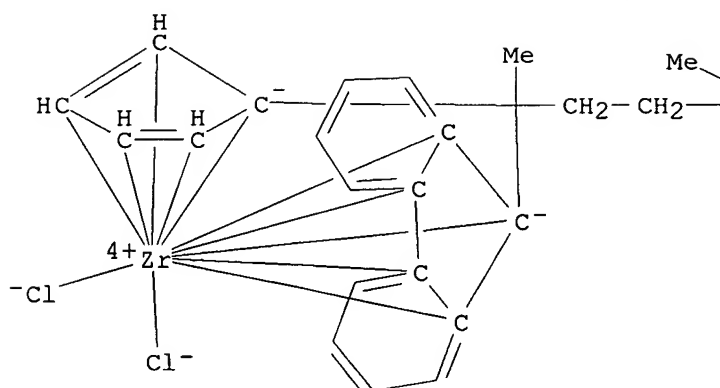
RN 238414-87-4 HCAPLUS

CN Zirconium, tetrachloro[μ -[η 10: η 10-[3-(2,4-cyclopentadien-1-yl)-3-(9H-fluoren-9-yl)butyl]di-1H-inden-1-ylmethylsilanato(4-)]]di- (9CI)
(CA INDEX NAME)

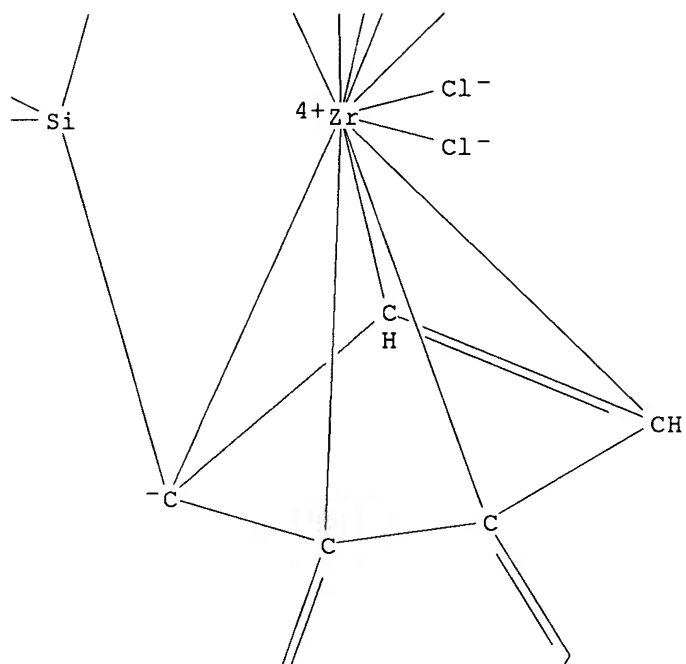
PAGE 1-B



PAGE 2-A



PAGE 2-B



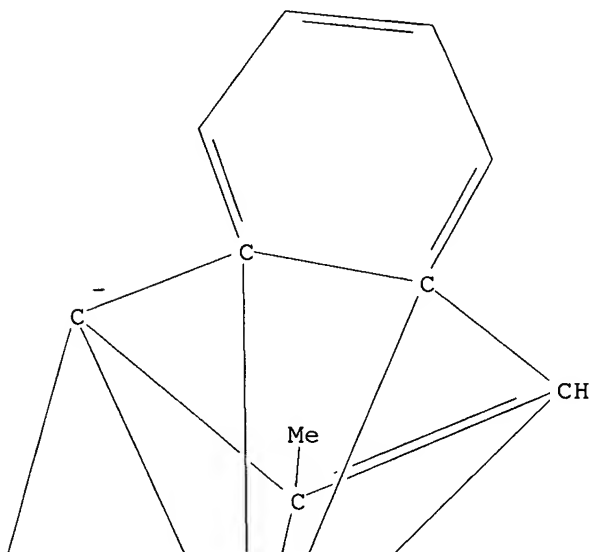
PAGE 3-B



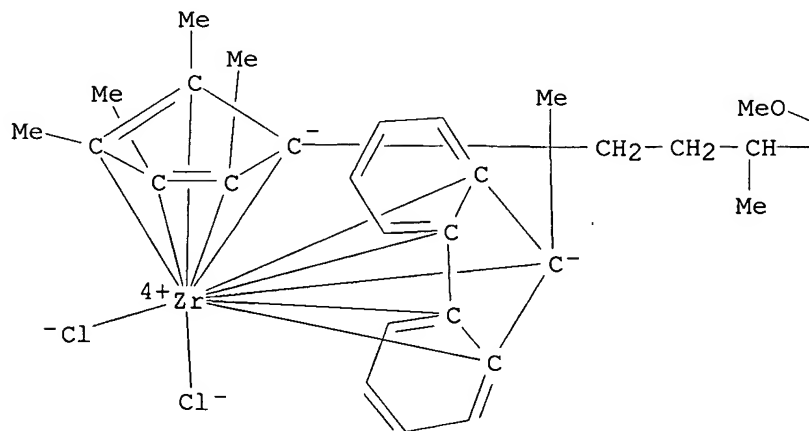
RN 238414-90-9 HCAPLUS

CN Zirconium, tetrachloro[μ-[η10:η10-[4-(9H-fluoren-9-yl)-1-methyl-4-(2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)pentyl]methoxybis(2-methyl-1H-inden-1-yl)silanato(4-)]di- (9CI) (CA INDEX NAME)

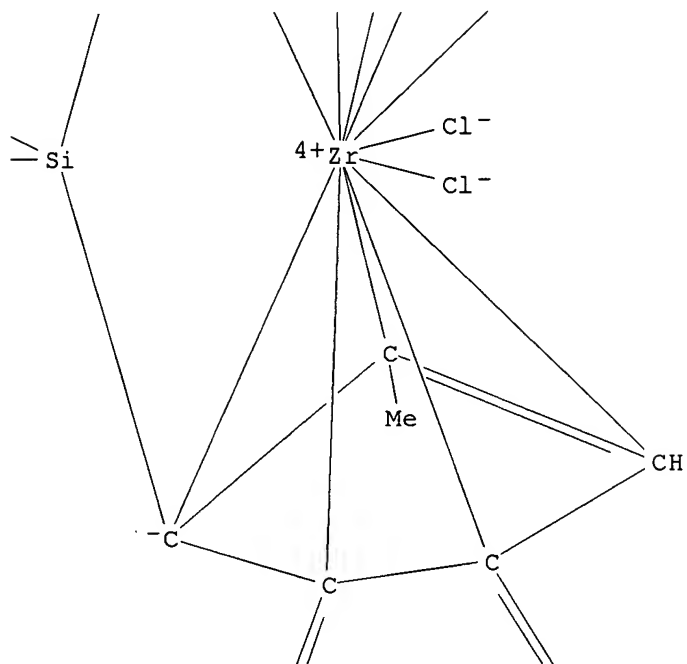
PAGE 1-B



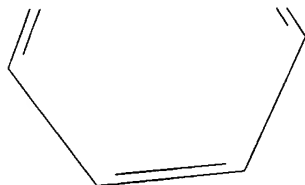
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PAGE 2-B



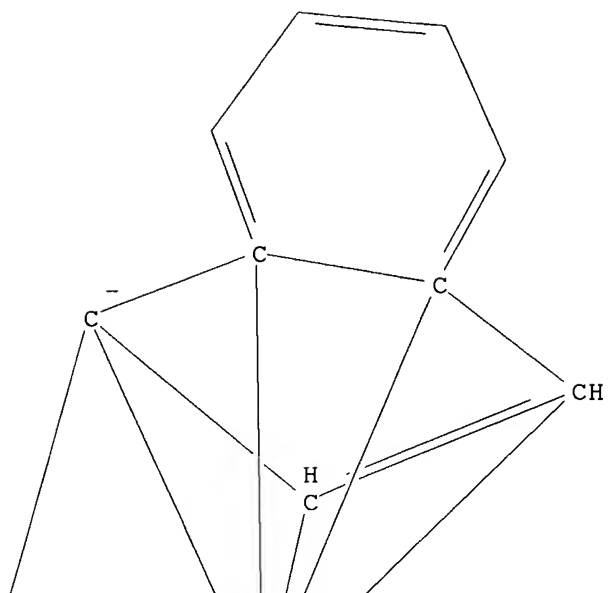
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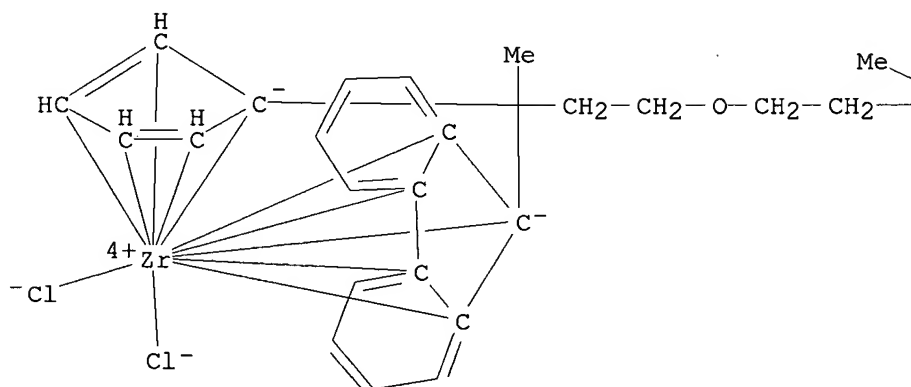
RN 238414-92-1 HCAPLUS

CN Zirconium, tetrachloro[μ -[$\eta^{10}:\eta^{10}$ -[2-[3-(2,4-cyclopentadien-1-yl)-3-(9H-fluoren-9-yl)butoxy]ethyl]di-1H-inden-1-ylmethylsilanato(4-)]]di-(9CI) (CA INDEX NAME)

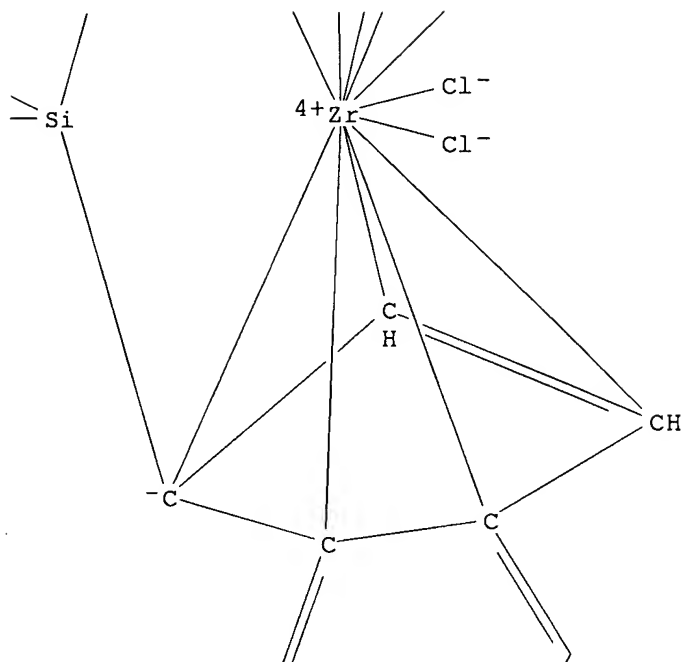
PAGE 1-B



PAGE 2-A



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PAGE 3-B



L40 ANSWER 9 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1999:566086 HCAPLUS
 DN 131:200269
 TI Metallocene catalysts for the polymerization of olefins
 IN Bohnen, Hans; Fritze, Cornelia; Kuber, Frank
 PA Targor GmbH, Germany
 SO PCT Int. Appl., 38 pp.
 CODEN: PIXXD2
 DT Patent
 LA German
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9943717	A1	19990902	WO 1999-EP956	19990213
	W: BR, CN, JP, KR, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	DE 19808253	A1	19990902	DE 1998-19808253	19980227
	EP 1058694	A1	20001213	EP 1999-911664	19990213
	EP 1058694	B1	20030409		

R: DE, ES, FR, GB, IT, NL

JP 2002504596 T2 20020212 JP 2000-533466 19990213
 US 6391989 B1 20020521 US 2000-622417 20000816

PRAI DE 1998-19808253 A 19980227
 WO 1999-EP956 W 19990213

OS MARPAT 131:200269

AB The title catalysts, which have the advantages of bulky ligands without the disadvantages of bulky aryl ligands, comprise complexes of Group IA, IIA, or IIIA metals with biphenyl derivs. of specified structure, metallocenes, and supports. Stirring 10 mmol 2,2'-dibromooctafluorobiphenyl (prepared by coupling 1,2-dibromotetrafluorobenzene with BuLi-TiCl₄) with 8 mL 2M BuLi in Et₂O at -78°, adding 5 mL 1M BCl₃, warming to room temperature, stripping solvent in vacuo, adding pentane and 0.79 g PhNMe₂.HCl, and stirring for 5 h gave N,N-dimethylanilinium bis(2,2'-octafluorobiphenyl)borate (I). Stirring 7.3 mg I, 5.9 mg dimethylsilylenebis(2-methyl-4-phenylindenyl)dimethylzirconium, and 1 g SiO₂ in PhMe and drying in vacuo gave a supported catalyst. Stirring 1.5 L liquid C₃H₆ with 3 mL 20% iso-Bu₃Al and the above catalyst at 60° for 1 h gave 214 g powdered polypropylene (37 kg/g metallocene-h).

IC ICM C08F004-643
 ICS C08F010-06

CC 35-3 (Chemistry of Synthetic High Polymers)
 Section cross-reference(s): 67

ST metallocene catalyst polymn olefin; dimethylanilinium octafluorobiphenyl borate catalyst; dibromooctafluorobiphenyl coupling; polypropylene manuf metallocene catalyst

IT Polymerization catalysts
 (metallocene catalysts for the polymerization of olefins)

IT Metallocenes
 RL: CAT (Catalyst use); USES (Uses)
 (metallocene catalysts for the polymerization of olefins)

IT Polyolefins
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (metallocene catalysts for the polymerization of olefins)

IT 827-08-7, 1,2-Dibromotetrafluorobenzene
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (coupling)

IT 1291-32-3 73364-10-0 119445-92-0 119821-97-5 135072-61-6
 135571-35-6 135571-36-7 143278-90-4 143278-92-6 149342-08-5
 152071-12-0 152881-64-6 152881-65-7 152881-66-8 152881-67-9
 158238-79-0 158238-80-3 158515-16-3 161442-55-3 162426-41-7
 162426-43-9 162857-08-1 163403-18-7 166601-14-5 167021-59-2
 167254-77-5 168466-11-3 168749-19-7 168749-20-0 168749-22-2
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 238432-69-4 238432-70-7 238432-71-8 240419-12-9 240419-14-1
 240419-17-4 240489-10-5
 RL: CAT (Catalyst use); USES (Uses)
 (metallocene catalysts for the polymerization of olefins)

IT 238096-43-0P 238096-45-2P 240419-08-3P 240419-10-7P
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (metallocene catalysts for the polymerization of olefins)

IT 9003-07-0P
 RL: IMF (Industrial manufacture); PREP (Preparation)
 (metallocene catalysts for the polymerization of olefins)

IT 5576-19-2P, 2,2'-Dibromooctafluorobiphenyl
 RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
 (Reactant or reagent)
 (preparation and reaction with butyllithium and boron trichloride)

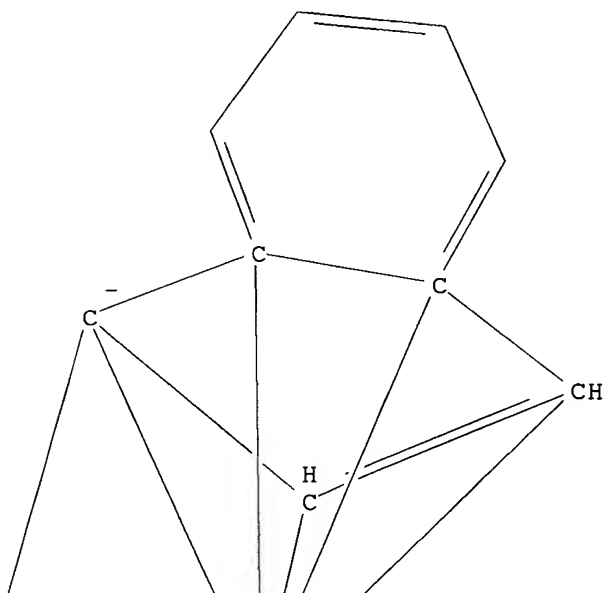
IT 76-83-5, Chlorotriphenylmethane 7719-12-2, Phosphorus trichloride
 10294-34-5, Boron trichloride
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with butyllithium and dibromooctafluorobiphenyl)

IT **238414-87-4 238414-90-9 238414-92-1**
 RL: CAT (Catalyst use); USES (Uses)
 (metallocene catalysts for the polymerization of olefins)

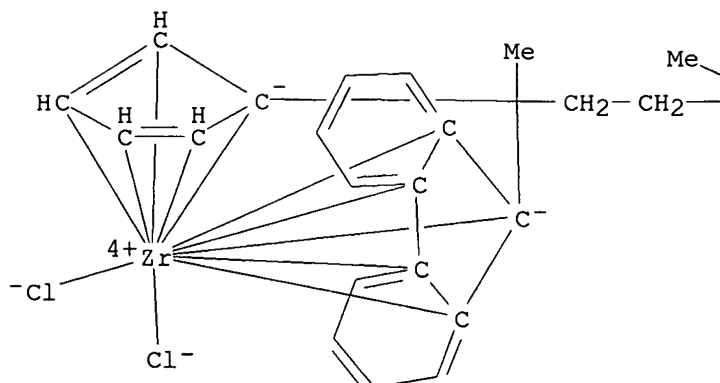
RN 238414-87-4 HCAPLUS

CN Zirconium, tetrachloro[μ -[η 10: η 10-[3-(2,4-cyclopentadien-1-yl)-
 3-(9H-fluoren-9-yl)butyl]di-1H-inden-1-ylmethylsilanato(4-)]]di- (9CI)
 (CA INDEX NAME)

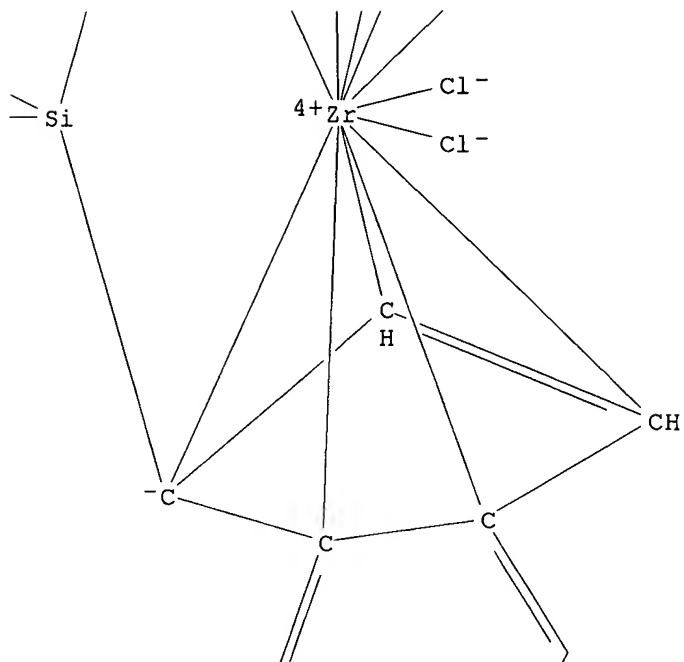
PAGE 1-B



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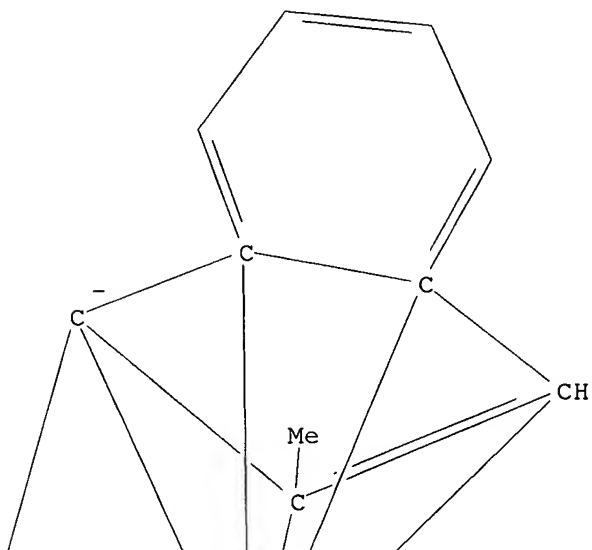
RN 238414-90-9 HCAPLUS

CN Zirconium, tetrachloro[μ-[η10:η10-[4-(9H-fluoren-9-yl)-1-methyl-

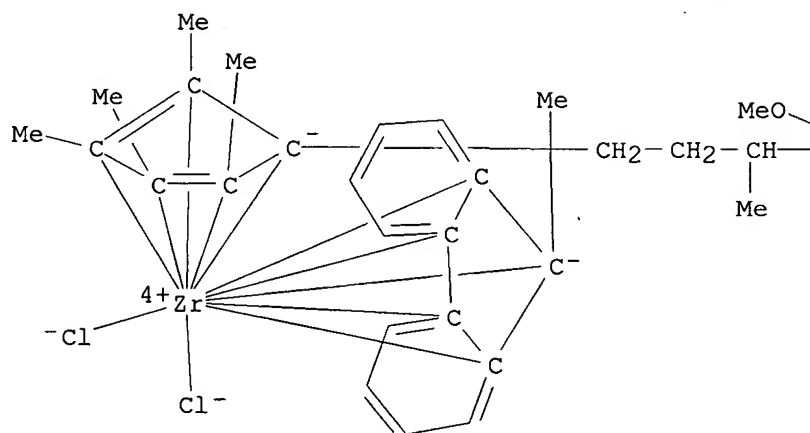
KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

4-(2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)pentyl]methoxybis(2-methyl-1H-inden-1-yl)silanato(4-)]di- (9CI) (CA INDEX NAME)

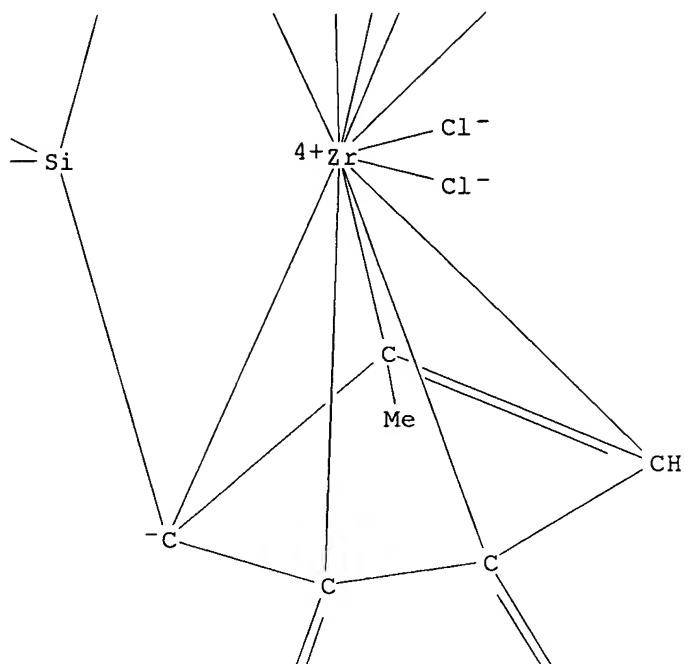
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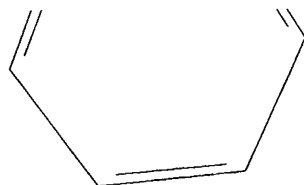
PAGE 2-A



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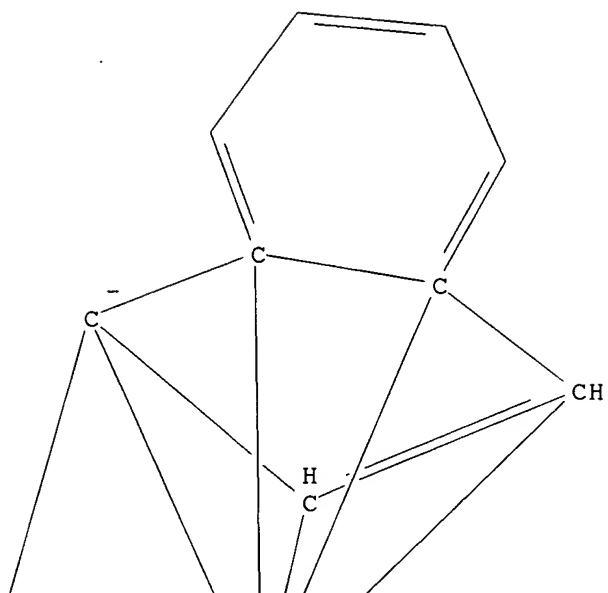
PAGE 3-B



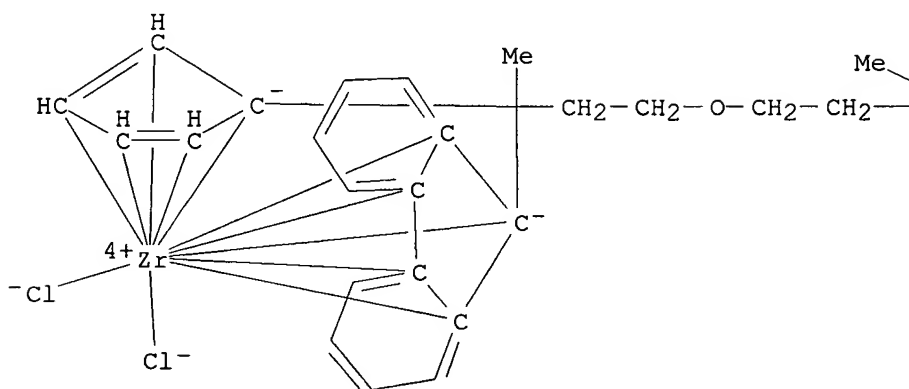
RN 238414-92-1 HCAPLUS

CN Zirconium, tetrachloro[μ -[$\eta^{10}:\eta^{10}$ -[2-[3-(2,4-cyclopentadien-1-yl)-3-(9H-fluoren-9-yl)butoxy]ethyl]di-1H-inden-1-ylmethylsilanato(4-)]]di-(9CI) (CA INDEX NAME)

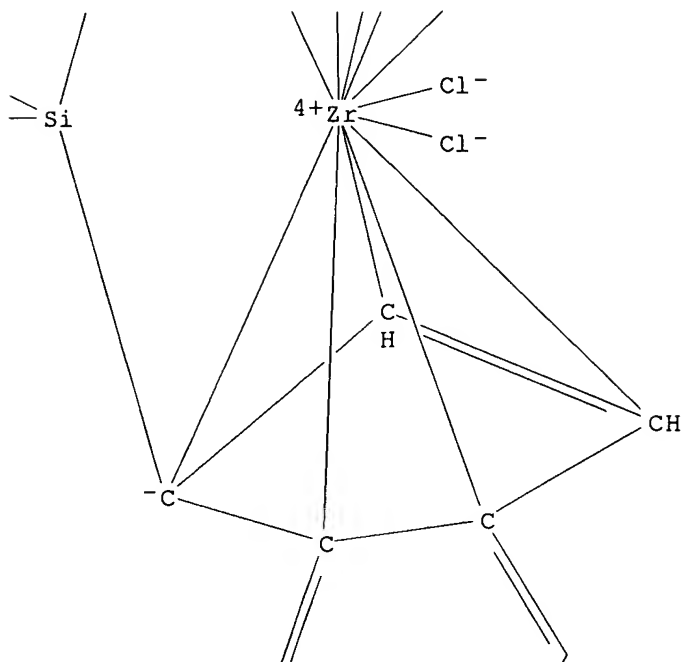
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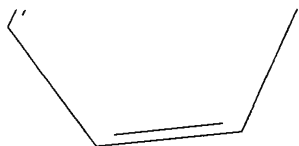
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PAGE 3-B



RE.CNT 7 THERE ARE 7 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 10 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1999:511196 HCAPLUS

DN 131:170746

TI Metallocene catalysts for polymerization of olefins

IN Bohnen, Hans; Fritze, Cornelia

PA Targor G.m.b.H., Germany

SO PCT Int. Appl., 86 pp.

CODEN: PIXXD2

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9940129	A1	19990812	WO 1999-EP725	19990205
	W: BR, CA, CN, GD, IN, JP, KR, NO, RU, US				
	RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	DE 19804970	A1	19990812	DE 1998-19804970	19980207

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

ZA 9900919	A	20000807	ZA 1999-919	19990205
EP 1053263	A1	20001122	EP 1999-907496	19990205
EP 1053263	B1	20031001		
R: BE, DE, ES, FR, GB, IT, NL, FI				
BR 9914227	A	20010626	BR 1999-14227	19990205
JP 2002502896	T2	20020129	JP 2000-530556	19990205
US 6482902	B1	20021119	US 2000-600313	20000713
PRAI DE 1998-19804970	A	19980207		
WO 1999-EP725	W	19990205		
OS	MARPAT 131:170746			
AB	The title catalysts, having high activity and giving polymers with good morphol., contain metallocenes, Lewis bases and organic B-Al compds. of specified structure, supports, and, optionally, organometallic compds. of Group IA, IIA, or IIIA elements. Stirring 1.5 L liquid C3H6 with 3 mL iso-Bu3Al (20% in Varsol) for 15 min, adding 5.8 mg (dimethylsilanediyl)bis(2-methyl-4-phenylindenyl)zirconiumdimethyl, 0.5 g supported bis(dimethylaluminumoxy)pentafluorophenylborane, and 20 μ mol AlMe3, and stirring for 1 h at 60° gave 151 g powdered polypropylene (26 kg/g metallocene-h).			
IC	ICM C08F010-00			
	ICS C08F004-649			
CC	35-3 (Chemistry of Synthetic High Polymers)			
	Section cross-reference(s): 67			
ST	metallocene catalyst polymn olefin; aluminioxyborane catalyst polymn; borane aluminioxy catalyst polymn; zirconocene catalyst polymn olefin; polypropylene manuf catalyst; trimethylaluminum catalyst polymn olefin			
IT	Polymerization catalysts			
	(metallocene catalysts for polymerization of olefins)			
IT	Metallocenes			
	RL: CAT (Catalyst use); USES (Uses)			
	(metallocene catalysts for polymerization of olefins)			
IT	Alkali metal compounds			
	Alkaline earth compounds			
	Group IIIA element compounds			
	Group VA element compounds			
	RL: CAT (Catalyst use); USES (Uses)			
	(organic derivs.; metallocene catalysts for polymerization of olefins)			
IT	Amines, uses			
	RL: CAT (Catalyst use); USES (Uses)			
	(tertiary, organic derivs.; metallocene catalysts for polymerization of olefins)			
IT	75-24-1, Trimethylaluminum 91-66-7, N,N-Diethylaniline 96-10-6, Chlorodiethylaluminum, uses 97-93-8, Triethylaluminum, uses 100-99-2, Triisobutylaluminum, uses 101-83-7, Dicyclohexylamine 102-67-0, Tripropylaluminum 102-82-9 110-86-1, Pyridine, uses 121-44-8, uses 121-69-7, uses 290-37-9, Pyrazine 603-35-0, Triphenylphosphine, uses 865-37-2, Dimethylaluminum hydride 871-27-2, Diethylaluminum hydride 1070-00-4, Trioctylaluminum 1116-40-1, Triisobutylamine 1116-70-7, Tributylaluminum 1116-73-0, Trihexylaluminum 1184-58-3, Chlorodimethylaluminum 1291-32-3 1779-25-5, Chlorodiisobutylaluminum 2397-67-3, Triisopropylaluminum 3424-21-3, Triisopropylamine 5997-68-2, Dimethyl(trimethylsiloxy)aluminum 12075-68-2, Trichlorotriethylaluminum 12542-85-7, Trichlorotrimethylaluminum 13021-15-3, N,N,2,4,6-Pentamethylaniline 18315-70-3, Diisopropylaluminum hydride 26834-21-9 35655-30-2 45481-27-4 73364-10-0 77076-14-3 119445-92-0 119821-97-5 135072-61-6 135571-35-6 135571-36-7 143278-90-4 143278-92-6 149342-08-5 152071-12-0 152881-64-6 152881-65-7 152881-66-8 152881-67-9 158238-79-0 158238-80-3			

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238416-47-2	238416-48-3			

RL: CAT (Catalyst use); USES (Uses)

(metallocene catalysts for polymerization of olefins)

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	238416-75-6	238416-76-7	238416-77-8	238416-78-9	238416-79-0
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RL: CAT (Catalyst use); USES (Uses)

(metallocene catalysts for polymerization of olefins)

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RL: CAT (Catalyst use); USES (Uses)

(metallocene catalysts for polymerization of olefins)

IT 197641-03-5P 220402-87-9P 222981-64-8P 238414-63-6P

RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)

(metallocene catalysts for polymerization of olefins)

IT 2622-89-1P, Diphenylborinic acid
 RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
 USES (Uses)
 (reaction with trimethylaluminum)

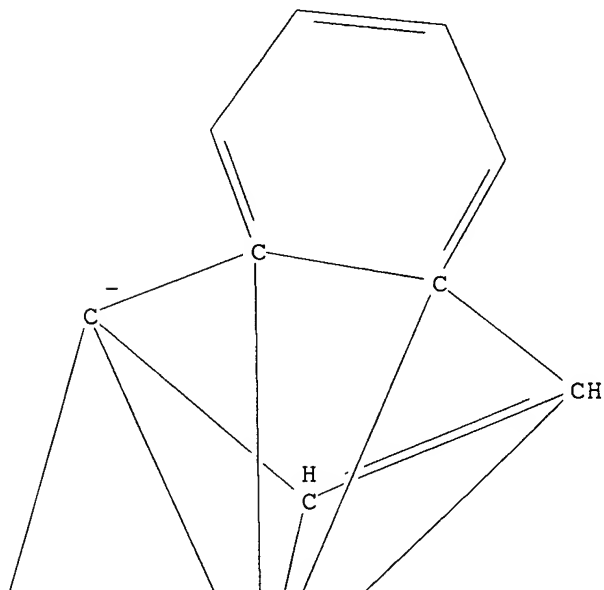
IT 1582-24-7, (Pentafluorophenyl)boronic acid 2118-02-7,
 Bis(pentafluorophenyl)borinic acid
 RL: RCT (Reactant); RACT (Reactant or reagent)
 (reaction with trimethylaluminum)

IT **238414-87-4 238414-90-9 238414-92-1**
 RL: CAT (Catalyst use); USES (Uses)
 (metallocene catalysts for polymerization of olefins)

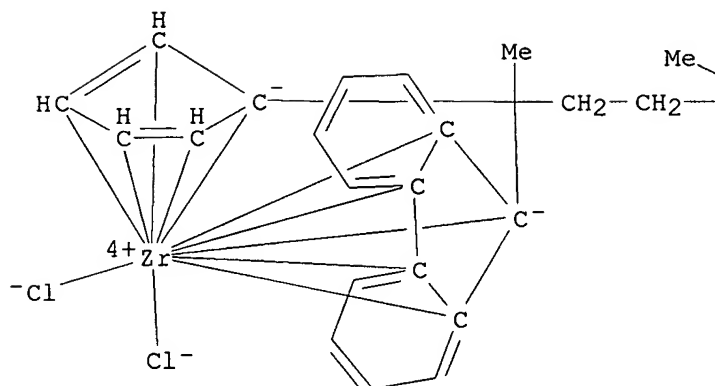
RN 238414-87-4 HCAPLUS

CN Zirconium, tetrachloro[μ -[η 10: η 10-[3-(2,4-cyclopentadien-1-yl)-
 3-(9H-fluoren-9-yl)butyl]di-1H-inden-1-ylmethylsilanato(4-)]]di- (9CI)
 (CA INDEX NAME)

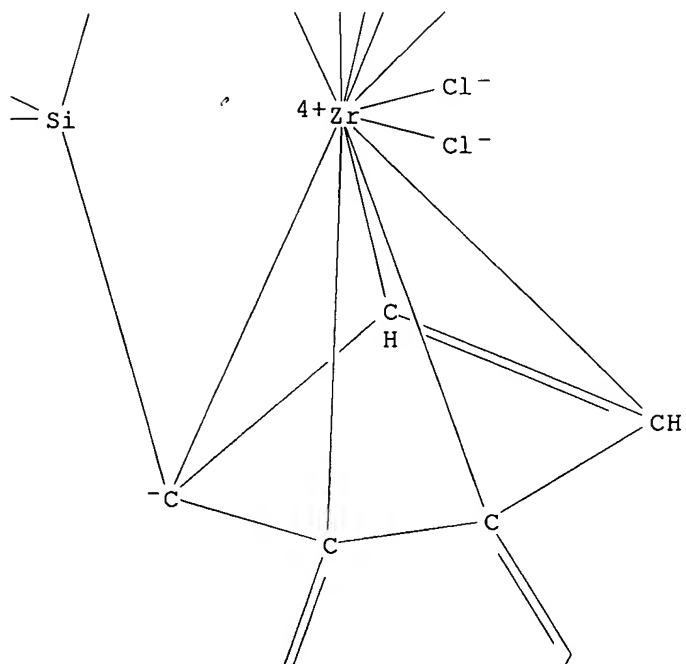
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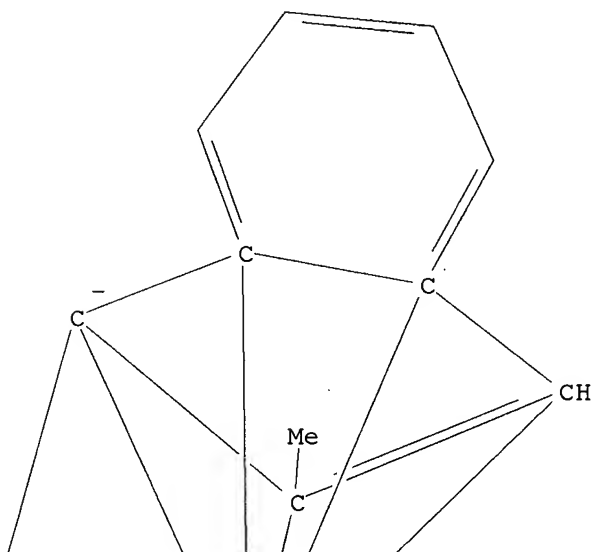
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CN Zirconium, tetrachloro[μ-[η10:η10-[4-(9H-fluoren-9-yl)-1-methyl-

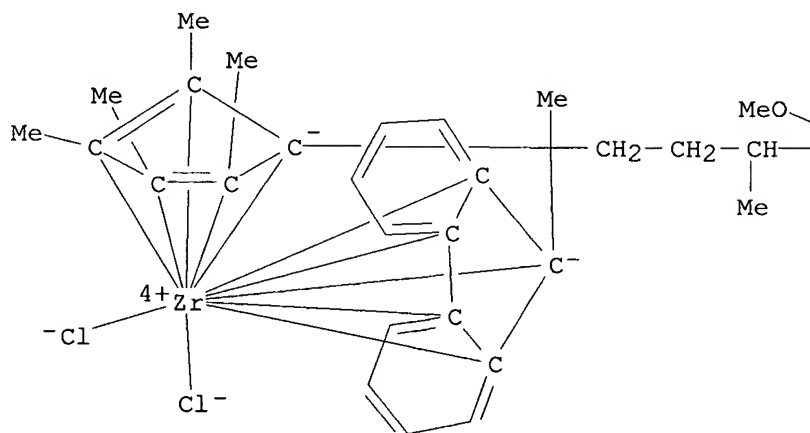
KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

4-(2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)pentyl]methoxybis(2-methyl-1H-inden-1-yl)silanato(4-)]di- (9CI) (CA INDEX NAME)

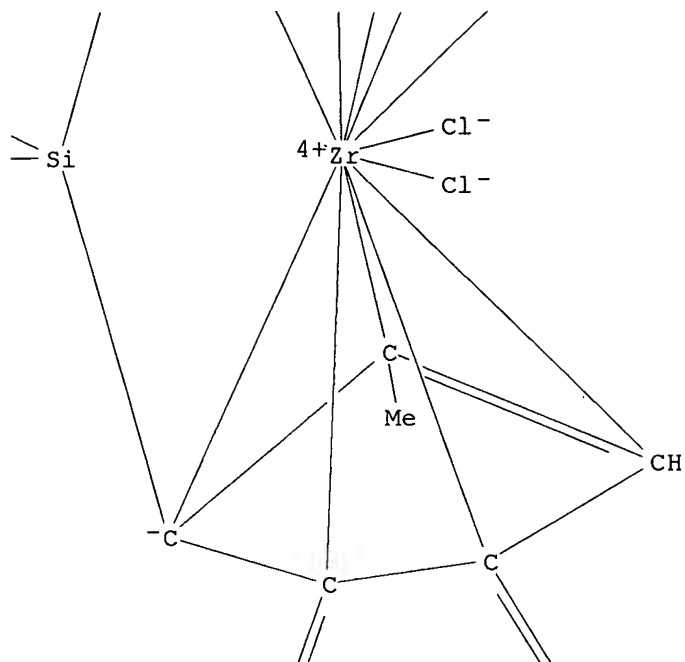
PAGE 1-B



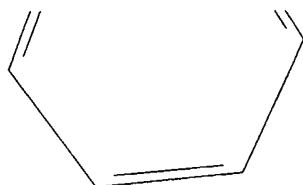
PAGE 2-A



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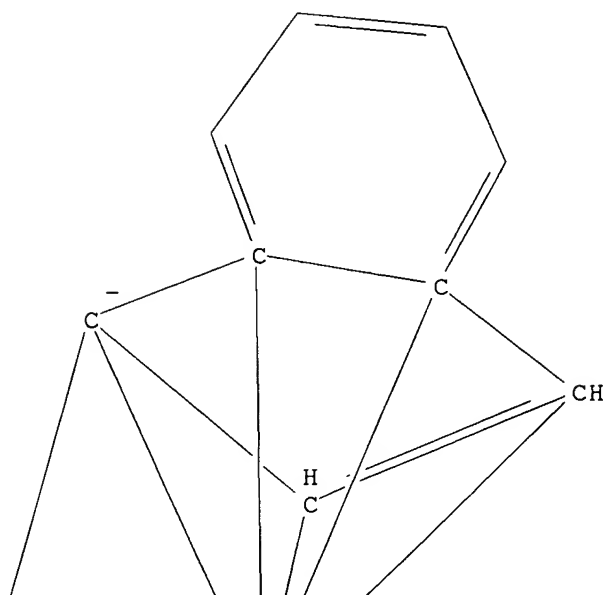


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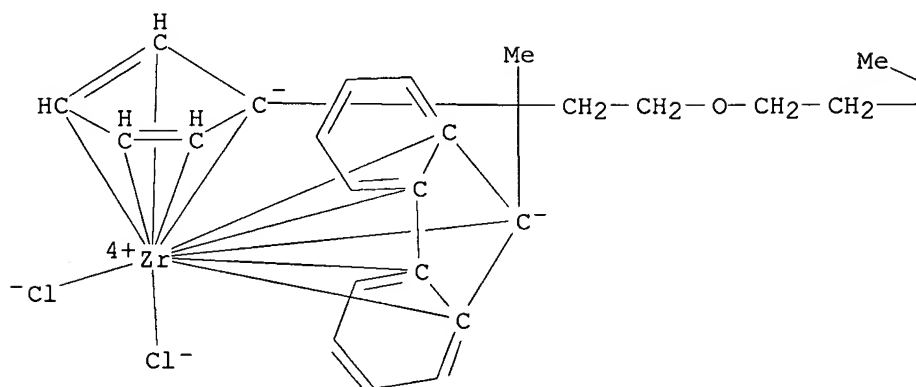


RN 238414-92-1 HCAPLUS
CN Zirconium, tetrachloro[μ -[$\eta^{10}:\eta^{10}$ -[2-[3-(2,4-cyclopentadien-1-yl)-3-(9H-fluoren-9-yl)butoxy]ethyl]di-1H-inden-1-ylmethylsilanato(4-)]]di-(9CI) (CA INDEX NAME)

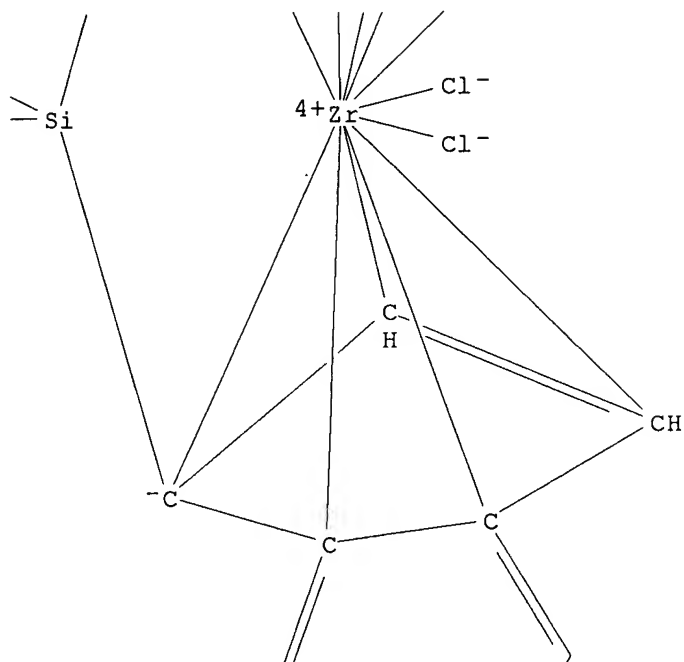
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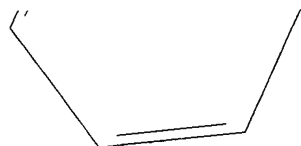
PAGE 2-A



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PAGE 3-B



RE.CNT 5 THERE ARE 5 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

L40 ANSWER 11 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1999:227960 HCAPLUS
DN 130:282497
TI Bridged metallocene catalysts and associated methods of preparation and
use for polymerization of olefins and vinyl compounds
IN Wilson, Robert B., Jr.
PA SRI International, USA
SO U.S., 25 pp.
CODEN: USXXAM
DT Patent
LA English

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5892079	A	19990406	US 1997-951949	19971017
	CA 2306986	AA	19990429	CA 1998-2306986	19981016
	WO 9920637	A1	19990429	WO 1998-US21819	19981016

W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE,

RW:	DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE,
	KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW,
	MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,
	TT, UA, UG, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
	GH, GM, KE, LS, MW, SD, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES,
	FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BE, BJ, CF, CG, CI,
	CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 9898047	A1	19990510	AU 1998-98047	19981016
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EP 1023305	A1	20000802	EP 1998-952320	19981016
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JP 2001520280 T2 20011030 JP 2000-516978 19981016

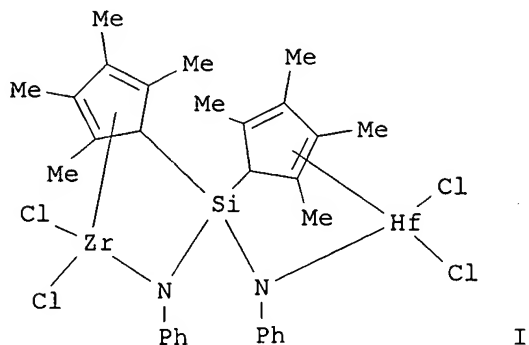
US 6096677	A	20000801	US 1999-247662	19990209
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PRAI US 1997-951949 A 19971017

WO 1998-US21819 W 19981016

OS MARPAT 130:282497

GI



AB Preferred polymer compns. prepared using the catalysts are bimodal or multimodal in nature, typically having a bimodal or multimodal mol. weight distribution. The metallocenes are binuclear or multinuclear based on Group IIIA, Group IVB, Group VA, lanthanide, or actinide metals and contain two or more chemical distinct active sites such as I.

IC ICM C07F017-00

ICS C07F007-00; C07F009-00

NCL 556011000

CC 35-3 (Chemistry of Synthetic High Polymers)

Section cross-reference(s): 29, 67

ST bridged metallocene multisite catalyst olefin polymn; actinide metal complex multisite catalyst olefin polymn; lanthanide metal complex multisite catalyst olefin polymn; transition metal complex multisite catalyst olefin polymn; hafnium zirconium methylcyclopentadienyl cyclohexylaminosilyl catalyst olefin polymn; vinyl compd polymn catalyst multisite bridged metallocene

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)

(Me, cocatalyst; multisite bridged metallocene catalysts for polymerization

of olefins and vinyl compds.)

IT Actinide compounds

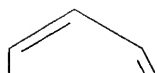
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)

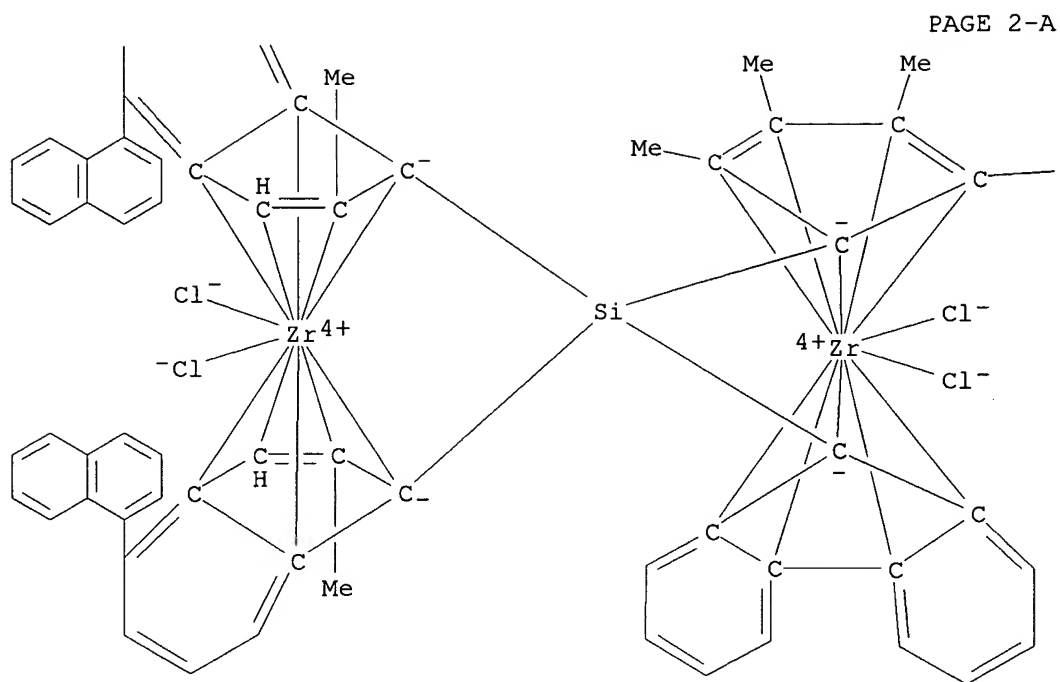
(complexes, metallocenes; multisite bridged metallocene catalysts for

- polymerization of olefins and vinyl compds.)
- IT Polymerization catalysts
(metallocene; multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT Group IIIA element complexes
Group IVA element compounds
Group VA element compounds
Rare earth complexes
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)
(metallocenes; multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT Metallocenes
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)
(multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT Polyolefins
RL: IMF (Industrial manufacture); PREP (Preparation)
(multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT Vinyl compounds, preparation
RL: IMF (Industrial manufacture); PREP (Preparation)
(polymers; multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT 89597-04-6P 167776-66-1P 222737-42-0P 222737-51-1P 222737-52-2P
222737-54-4P
RL: IMF (Industrial manufacture); RCT (Reactant); PREP (Preparation); RACT
(Reactant or reagent)
(catalyst precursor; multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT 95-13-6, Indene 107-10-8, Propylamine, reactions 108-91-8,
Cyclohexylamine, reactions 109-72-8, Butyllithium, reactions 676-58-4,
Methylmagnesium chloride 925-90-6, Ethylmagnesium bromide 4249-10-9,
1,2,3,4-Tetramethylcyclopentadiene 4819-94-7, Lithium cyclohexylamide
10026-04-7, Silicon tetrachloride 37828-54-9
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalyst precursor; multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT 222737-41-9P 222737-43-1P 222737-44-2P 222737-45-3P 222737-46-4P
222737-47-5P 222737-48-6P 222737-49-7P 222737-50-0P 222737-53-3P
222737-55-5P 222737-56-6P 222737-57-7P 222737-58-8P 222737-59-9P
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222737-65-7P 222737-66-8P 222737-67-9P
222737-68-0P 222737-69-1P 222737-70-4P
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)
(multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT 9002-88-4P
RL: IMF (Industrial manufacture); PREP (Preparation)
(multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)
- IT **222737-65-7P 222737-66-8P 222737-68-0P**
RL: CAT (Catalyst use); IMF (Industrial manufacture); PREP (Preparation);
USES (Uses)
(multisite bridged metallocene catalysts for polymerization of olefins and vinyl compds.)

RN 222737-65-7 HCAPLUS
CN Zirconium, tetrachloro[μ -[$\eta^{10}:\eta^{10}$ -9H-fluoren-9-ylbis[2-methyl-4-(1-naphthalenyl)-1H-inden-1-yl]](2,3,4,5-tetramethyl-2,4-cyclopentadien-1-yl)silanato(4-)]di- (9CI) (CA INDEX NAME)

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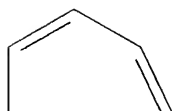


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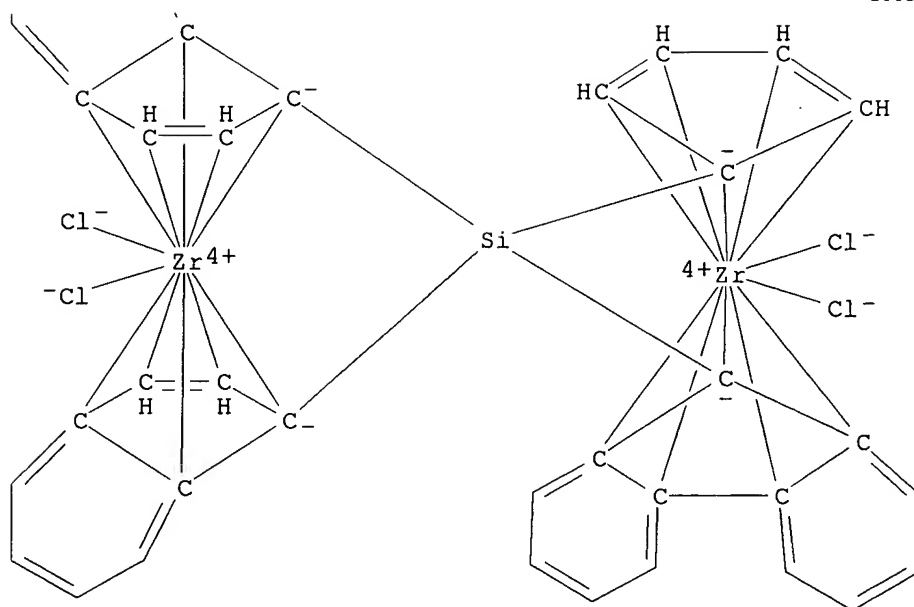
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CN Zirconium, tetrachloro[μ-[η10:η10-2,4-cyclopentadien-1-yl-9H-fluoren-9-yl-di-1H-inden-1-ylsilanato(4-)]]di- (9CI) (CA INDEX NAME)

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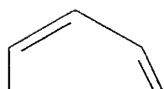


RN 222737-68-0 HCAPLUS

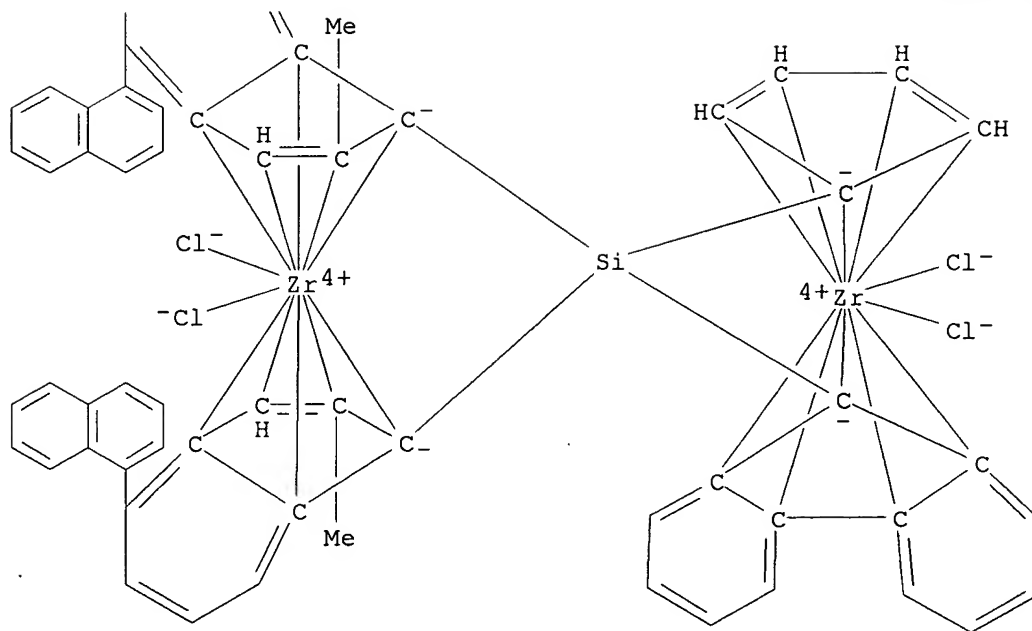
CN Zirconium, tetrachloro[μ -[$\eta^{10}:\eta^{10}$ -2,4-cyclopentadien-1-yl-9H-fluoren-9-yl]bis[2-methyl-4-(1-naphthalenyl)-1H-inden-1-yl]silanato(4-)]di-(9CI) (CA INDEX NAME)

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

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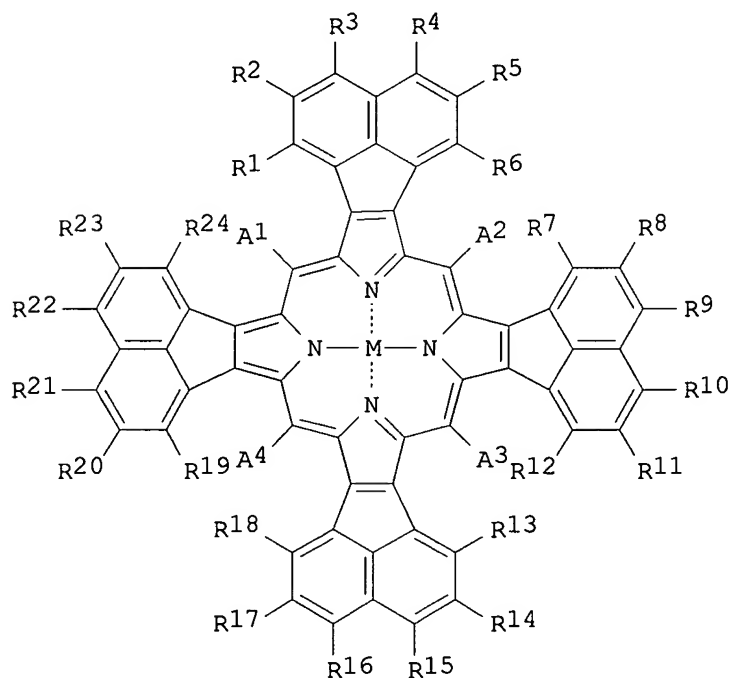


RE.CNT 12 THERE ARE 12 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

L40 ANSWER 12 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1998:402639 HCAPLUS
 DN 129:129066
 TI Rewritable optical recording material containing porphyrin compound
 IN Tsukahara, Hiroshi; Misawa, Tsuguyoshi; Sugimoto, Kenichi; Nishimoto,
 Taizo; Tsuda, Takeshi; Umehara, Hideki; Takuma, Keisuke
 PA Mitsui Toatsu Chemicals, Inc., Japan; Yamamoto Chemicals Inc.
 SO Jpn. Kokai Tokkyo Koho, 13 pp.
 CODEN: JKXXAF
 DT Patent
 LA Japanese
 FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 10166732	A2	19980623	JP 1996-333751	19961213
PRAI	JP 1996-333751		19961213		
OS	MARPAT 129:129066				
GI					

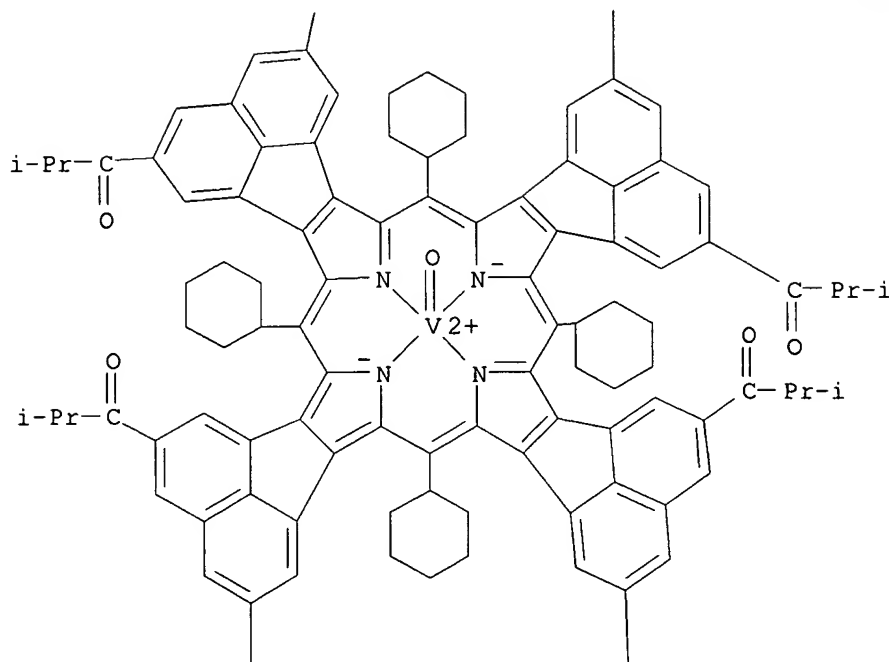


I

AB The material comprises a support successively coated with a recording layer containing a porphyrin compound I (R1-24 = H, halo, C1-20 alkyl, C1-20 alkoxy, C1-20 alkylthio, aryloxy, arylthio, C2-20 alkenyl, aralkyl, C1-20 acyl, aryl; A1-4 = H, C1-20 alkyl, aryl; M = 2 hydrogens, di-, tri-, or tetra-valent metal derivative), a reflective layer, and a protective layer. The material shows high d. recording and reading using laser of wavelength 600-700 μm .

IC ICM B41M005-26

PAGE 2-A



PAGE 3-A

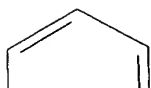


L40 ANSWER 13 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:666419 HCAPLUS
 DN 127:307450
 TI Sterically overloaded indenyl complexes of zirconium and hafnium
 AU Schmid, Claudia; Alt, Helmut G.; Milius, Wolfgang
 CS Laboratorium fuer Anorganische Chemie der Universitaet Bayreuth, Postfach
 10 21 51, Bayreuth, D-95440, Germany
 SO Journal of Organometallic Chemistry (1997), 544(1), 139-142
 CODEN: JORCAI; ISSN: 0022-328X
 PB Elsevier
 DT Journal
 LA German
 AB The reaction of zirconocene dichloride, Cp_2ZrCl_2 , and bis(indenyl) metal
 dichloride, Ind_2MCl_2 ($\text{M} = \text{Zr}, \text{Hf}$), with one and two equivalent, resp., of
 indenyl or fluorenyl Li leads to sterically crowded complexes with three
 or four potential π -ligands ($\text{Cp}_2\text{Zr}(\text{Ind})\text{Cl}$, $\text{Cp}_2\text{Zr}(\text{Ind})_2$, Ind_3ZrCl ,
 Ind_3HfCl (4), $\text{Ind}_2\text{Zr}(\text{Flu})\text{Cl}$). Compound 4 was characterized by an x-ray
 structure anal.
 CC 29-10 (Organometallic and Organometalloidal Compounds)

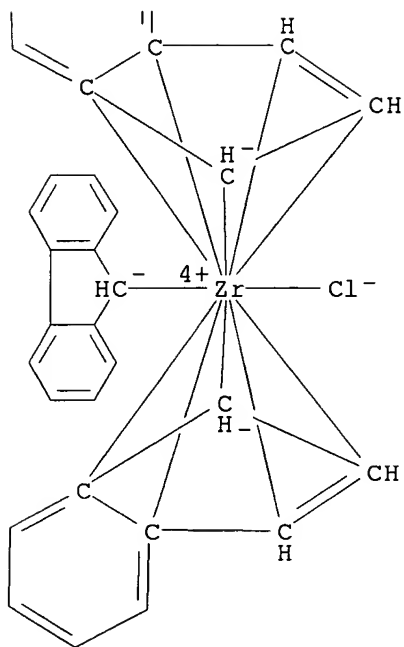
Section cross-reference(s): 75

- ST crystal structure hafnium indenyl chloro complex; mol structure hafnium indenyl chloro complex; indenyl hafnium zirconium sterically crowded prepn; hafnium indenyl sterically crowded prepn structure; zirconium indenyl fluorenyl cyclopentadienyl complex prepn; fluorenyl zirconium indenyl complex prepn; cyclopentadienyl zirconium indenyl complex prepn; sterically crowded hafnium zirconium indenyl complex
- IT Rotational barrier
(for zirconium tris(indenyl) chloro complex)
- IT Metallocenes
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(hafnocenes; preparation and crystal structure of indenyl)
- IT Crystal structure
Molecular structure
(of hafnium tris(indenyl) chloro complex)
- IT Metallocenes
RL: SPN (Synthetic preparation); PREP (Preparation)
(zirconocenes; preparation of cyclopentadienyl and indenyl with/without σ -indenyl or σ -fluorenyl)
- IT 197503-08-5P, Bis(η 5-cyclopentadienyl)bis(1-indenyl)zirconium
RL: SPN (Synthetic preparation); PREP (Preparation)
(Sterically overloaded indenyl complexes of zirconium and hafnium)
- IT 86-73-7, Fluorene
RL: RCT (Reactant); RACT (Reactant or reagent)
(lithiation followed by reaction with zirconocene chloride)
- IT 95-13-6, Indene
RL: RCT (Reactant); RACT (Reactant or reagent)
(lithiation followed by reactions with hafnocenes or zirconocenes)
- IT 197503-10-9P, Chlorotris(η 5-indenyl)hafnium
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
- IT 197503-09-6P, Chlorotris(η 5-indenyl)zirconium
RL: PEP (Physical, engineering or chemical process); SPN (Synthetic preparation); PREP (Preparation); PROC (Process)
(preparation and hindered rotation in)
- IT 197503-06-3P, Chlorobis(η 5-cyclopentadienyl)(1-indenyl)zirconium
197503-12-1P, Chloro(9-fluorenyl)bis(η 5-indenyl)zirconium
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
- IT 49596-05-6, Dichlorobis(η 5-indenyl)hafnium
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with indenyllithium)
- IT 1291-32-3, Dichlorobis(η 5-cyclopentadienyl)zirconium
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions with indenyllithium)
- IT 12148-49-1, Dichlorobis(η 5-indenyl)zirconium
RL: RCT (Reactant); RACT (Reactant or reagent)
(reactions with indenyllithium or fluorenyllithium)
- IT **197503-12-1P**, Chloro(9-fluorenyl)bis(η 5-indenyl)zirconium
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
- RN 197503-12-1 HCAPLUS
- CN Zirconium, chloro-9H-fluoren-9-ylbis[(1,2,3,3a,7a- η)-1H-inden-1-yl]-
(9CI) (CA INDEX NAME)

PAGE 1-A



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RE.CNT 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD
ALL CITATIONS AVAILABLE IN THE RE FORMAT

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

L40 ANSWER 14 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
 AN 1997:473288 HCAPLUS
 DN 127:75019
 TI Synthesis, Structures, Dynamics, and Olefin Polymerization Behavior of
 Group 4 Metal (pyCar2O)2M(NR2)2 Complexes Containing Bidentate
 Pyridine-Alkoxide Ancillary Ligands
 AU Kim, Il; Nishihara, Yasushi; Jordan, Richard F.; Rogers, Robin D.;
 Rheingold, Arnold L.; Yap, Glenn P. A.
 CS Department of Chemistry, University of Iowa, Iowa City, IA, 52242, USA
 SO Organometallics (1997), 16(15), 3314-3323
 CODEN: ORGND7; ISSN: 0276-7333
 PB American Chemical Society
 DT Journal
 LA English
 AB The reaction of 2-lithiopyridine and the appropriate diarylketone followed
 by hydrolysis yields pyCar2OH pyridine-alcs. (1a, Ar = 4-tBu-C6H4; 1b,
 pyCar2OH = 2-pyridyl-9-fluorenol; 1c, Ar = 3-CF3-C6H4; 1d, Ar = 4-Ph-C6H4;
 1e, Ar = 4-NEt2-C6H4; 1f, pyCar2OH = 1-(2-pyridyl)-1-dibenzosuberol; 1g,
 Ar = 3,5-(CF3)2-C6H3). The reaction of Ti(NMe2)4 with 2 equiv of 1a-g
 yields (pyCar2O)2Ti(NMe2)2 (2a-g) and NMe2H. The reaction of Zr(NMe2)4
 with 2 equiv of 1a,b,e yields (pyCar2O)2Zr(NMe2)2 (3a,b,e), while similar
 reactions with 1c,d yield mixts. of (pyCar2O)xZr(NMe2)4-x (x = 1-3)
 species. {PyC(3-CF3-C6H4)2O}3Zr(NMe2) (4c) and {pyC(4-NEt2-C6H4)2O}4Zr
 (5e) were prepared from Zr(NMe2)4 and 3 equiv of 1c or 4 equiv of 1e, resp.
 The reaction of Hf(NMe2)4 with 2 equiv of 1a,e yields (pyCar2O)2Hf(NMe2)2
 (6a,e), while reaction with 3 equiv of 1b,c yields (pyCar2O)3Hf(NMe2)
 (7b,c). X-ray crystallog. analyses establish that 2b, 2e·toluene,
 and 3a·0.5NMe2H adopt distorted octahedral structures with a
 trans-O, cis-py, cis-amide arrangement of ligands. NMR data show that
 (pyCar2O)2M(NMe2)2 complexes adopt the same structure in solution but undergo
 inversion of configuration at the metal with racemization barriers
 (ΔG.thermod. (racemization)) at 12-14 kcal/mol. Treatment of
 (pyCar2O)2M(NMe2)2 complexes with Al(iBu)3 and methylalumoxane (MAO)
 yields active, multisite ethylene polymerization catalysts.
 CC 78-7 (Inorganic Chemicals and Reactions)
 Section cross-reference(s): 23, 27, 35, 67, 75
 ST crystal structure titanium zirconium pyridinemethanolato amido; Group 4
 pyridinemethanolato amido prepn structure; titanium pyridinemethanolato
 amido catalyst prepn structure; zirconium pyridinemethanolato amido
 catalyst prepn structure; olefin polymn catalyst titanium zirconium
 pyridinemethanolato; ethylene polymn catalyst titanium zirconium
 pyridinemethanolato
 IT Aluminoxanes
 RL: CAT (Catalyst use); USES (Uses)
 (Me; cocatalyst with titanium or zirconium pyridinemethanolato
 dimethylamido complexes for ethylene polymerization)
 IT Polymerization catalysts
 (catalytic polymerization of ethylene by titanium and zirconium and hafnium
 pyridinemethanolato dimethylamido complexes)
 IT Crystal structure
 Molecular structure
 (of titanium and zirconium pyridinemethanolato dimethylamido complexes)
 IT Group IVB element complexes
 RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process);
 PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC
 (Process); USES (Uses)
 (preparation, crystal structure and racemization in solution of Group 4

- pyridinemethanolato dimethylamido complex olefin polymerization catalysts)
- IT Racemization
(racemization barriers of titanium and zirconium and hafnium pyridinemethanolato dimethylamido complexes)
- IT Potential barrier
(racemization; of titanium and zirconium and hafnium pyridinemethanolato dimethylamido complexes)
- IT 74-85-1, Ethene, reactions 9002-88-4, Polyethylene
RL: RCT (Reactant); RACT (Reactant or reagent)
(catalytic polymerization of ethylene by titanium and zirconium and hafnium pyridinemethanolato dimethylamido complexes)
- IT 100-99-2, Triisobutylaluminum, uses
RL: CAT (Catalyst use); USES (Uses)
(cocatalyst with titanium or zirconium pyridinemethanolato dimethylamido complexes for ethylene polymerization)
- IT 3275-24-9, Tetrakis(dimethylamido)titanium 19756-04-8,
Tetrakis(dimethylamido)zirconium 19782-68-4,
Tetrakis(dimethylamido)hafnium
RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of Group 4 pyridinemethanolato dimethylamido complex catalyst for ethylene polymerization)
- IT 149064-67-5, Bis(4-tert-butylphenyl)-2-pyridylmethanol
RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of Group 4 pyridinemethanolato dimethylamido complex olefin polymerization catalysts)
- IT 64436-62-0P, 9-(2-Pyridyl)-9-fluorenone 95425-83-5P, 1-(2-Pyridyl)dibenzosuberone 191333-98-9P, Bis(3-(trifluoromethyl)phenyl)-2-pyridylmethanol 191334-00-6P 191334-02-8P, Bis(4-(diethylamino)phenyl)-2-pyridylmethanol 191334-05-1P, Bis(3,5-bis(trifluoromethyl)phenyl)-2-pyridylmethanol
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(for preparation of Group 4 pyridinemethanolato dimethylamido complex olefin polymerization catalysts)
- IT 90-93-7, 4,4'-Bis(diethylamino)benzophenone 109-04-6, 2-Bromopyridine 486-25-9, 9-Fluorenone 1210-35-1, Dibenzosuberone 1868-00-4, 3,3'-Bis(trifluoromethyl)benzophenone 3478-90-8, 4,4'-Diphenylbenzophenone 175136-66-0, 3,3',5,5'-Tetrakis(trifluoromethyl)benzophenone
RL: RCT (Reactant); RACT (Reactant or reagent)
(for preparation of pyridinemethanol aryl derivative and its Group 4 pyridinemethanolato dimethylamido complex catalyst for ethylene polymerization)
- IT 191334-13-1P 191334-25-5P
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and catalyst for polymerization of ethylene)
- IT 191334-39-1P 191334-41-5P
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure)
- IT 191334-09-5P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation and crystal structure and catalyst for polymerization of ethylene)
- IT 191334-15-3P
RL: CAT (Catalyst use); PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(preparation and mol. structure and catalyst for polymerization of ethylene)

IT 191334-11-9P 191334-17-5P 191334-19-7P 191334-31-3P 191334-33-5P
RL: PEP (Physical, engineering or chemical process); PRP (Properties); SPN
(Synthetic preparation); PREP (Preparation); PROC (Process)

(preparation and racemization barrier)

IT 191334-23-3P 191334-27-7P 191334-29-9P **191334-35-7P**
191334-37-9P
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

IT 191334-07-3P
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process);
PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC
(Process); USES (Uses)

(preparation, racemization barrier and catalyst for polymerization of
ethylene)

IT 191334-21-1P
RL: CAT (Catalyst use); PEP (Physical, engineering or chemical process);
PRP (Properties); SPN (Synthetic preparation); PREP (Preparation); PROC
(Process); USES (Uses)

(preparation, racemization barrier, mol. structure and catalyst for
polymerization
of ethylene)

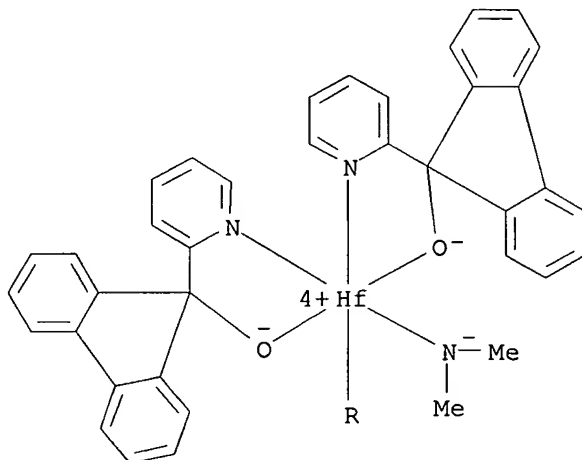
IT **191334-35-7P**
RL: SPN (Synthetic preparation); PREP (Preparation)

(preparation of)

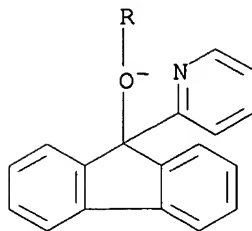
RN 191334-35-7 HCAPLUS

CN Hafnium, (N-methylmethanaminato)bis[9-(2-pyridinyl- κ N)-9H-fluoren-9-
olato- κ O][9-(2-pyridinyl)-9H-fluoren-9-olato- κ O]- (9CI) (CA
INDEX NAME)

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L40 ANSWER 15 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:278851 HCAPLUS

DN 126:251244

TI Method for producing metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsaturated organic cyclic compounds

IN Seki, Takashi; Tajima, Yoshio; Matsura, Kazuo

PA Nippon Oil Co Ltd, Japan

SO Jpn. Kokai Tokkyo Koho, 17 pp.

CODEN: JKXXAF

DT Patent

LA Japanese

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	JP 09048790	A2	19970218	JP 1996-154922	19960527
PRAI	JP 1995-157102		19950531		
OS	CASREACT 126:251244				

AB Metallocenes (R4)qM1(X1)4-q [M1 = periodic table group IVa transition metal; R4 = (un)substituted cyclopentadienyl or indenyl; R4 optionally is bonded to another R4 through C2-8 alkylene and/or silylene; X1 = halo, H, C1-24 hydrocarbyl; 1≤q≤4R1] are prepared by contacting together (R1)pM1(X1)4-p [M1, X1 = same as above; R1 = (un)substituted cyclopentadienyl or indenyl; R1 optionally is bonded to another R1 through C2-8 alkylene and/or silylene; 1≤p≤4], M2(R2)m(OR3)n(X2)z-m-n (M2 = periodic table group I-III element; R2, R3 = C1-24 hydrocarbyl; X2 = H or halo, provided that when X2 = H, M2 = periodic table group III element; z = valence number of M2; 0≤m≤z, 0≤n≤z, and 0<m+n≤z) (ligand exchange catalyst), and an organic cyclic compound having a conjugated double bond. This process is simple and low in cost and gives a desired metallocene by simply adding a cyclic compound having a conjugated double bond, typically a cyclopentadiene derivative, to a commonly used organometallic compound. Thus, bis(indenyl)dimethylzirconium 10, cyclopentadiene 100, and triisobutylaluminum 100 mmol were added to 100 mL toluene and the resulting mixture was stirred at room temperature for 3 h to

give

biscyclopentadienylzirconium complex. When triisobutylaluminum was not used, biscyclopentadienylzirconium was formed in .apprx.55% yield and .apprx.45% bis(indenyl)dimethylzirconium was left unreacted.

IC ICM C07F017-00

CC 29-10 (Organometallic and Organometalloidal Compounds)

ST metallocene prepn; biscyclopentadienylzirconium complex prepn; organometallic compd ligand exchange catalyst; cyclic compd conjugated double; cyclopentadiene ligand exchange bisindenylzirconium;

transition metal metallocene prepn

IT Substitution reaction catalysts
(organometallic compds.; preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

IT Substitution reaction
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

IT Organometallic compounds
RL: CAT (Catalyst use); USES (Uses)
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

IT Transition metal complexes
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

IT Metallocenes
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

IT 75-16-1, Methylmagnesium bromide 100-99-2, Triisobutylaluminum, uses 109-72-8, Butyllithium, uses 594-19-4, tert-Butyllithium 917-54-4, Methylolithium 1730-72-9, Dimethylaluminum butoxide 14994-03-7, Tribenzylaluminum
RL: CAT (Catalyst use); USES (Uses)
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

IT 542-92-7, 1,3-Cyclopentadiene, reactions 12113-02-9, Bisindenyltitanium dichloride 15721-07-0 26519-91-5, Methylcyclopentadiene 49596-04-5, Bis(indenyl)dimethylzirconium 60373-20-8, Bis(fluorenyl)dimethylzirconium 72347-62-7, Trimethylcyclopentadiene 77208-25-4, Dimethylcyclopentadiene 136841-87-7, Bis(pentamethylcyclopentadienyl)dibenzylzirconium 188601-02-7 188601-03-8 188601-04-9, (Ethylenebiscyclopentadienyl)dineophylzirconium
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

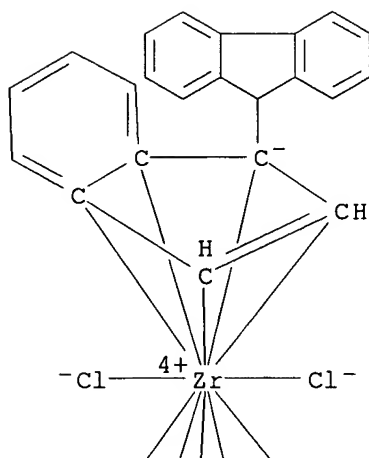
IT 12636-72-5P, Bis(cyclopentadienyl)dimethylzirconium 112531-76-7P 130139-66-1P 188601-01-6P, Bis(methylcyclopentadienyl)dineophylhafnium 188706-28-7P 188706-29-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

IT 188601-02-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(preparation of metallocenes by ligand exchange reaction of transition metal complexes with conjugated unsatd. organic cyclic compds.)

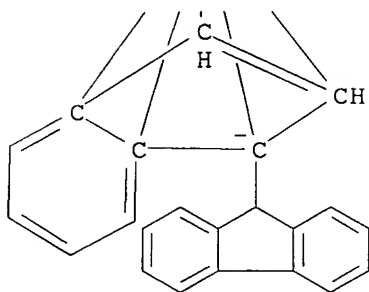
RN 188601-02-7 HCAPLUS

CN Zirconium, dichlorobis[(1,2,3,3a,7a-η)-1-(9H-fluoren-9-yl)-1H-inden-1-yl]- (9CI) (CA INDEX NAME)

PAGE 1-A



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L40 ANSWER 16 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1997:76763 HCAPLUS

DN 126:89511

TI Synthesis of Enantiomerically Pure Ethylene-Bridged ansa-Zirconocene and -Hafnocene Complexes Bearing Fluorenyl, Indenyl, Octahydrofluorenyl, and Tetrahydroindenyl Ligands

AU Jany, Gerhard; Fawzi, Riad; Steimann, Manfred; Rieger, Bernhard

CS Abteilung Organische Chemie III Makromolekulare Chemie, Universitaet Ulm, Ulm, D-89069, Germany

SO Organometallics (1997), 16(4), 544-550

CODEN: ORGND7; ISSN: 0276-7333

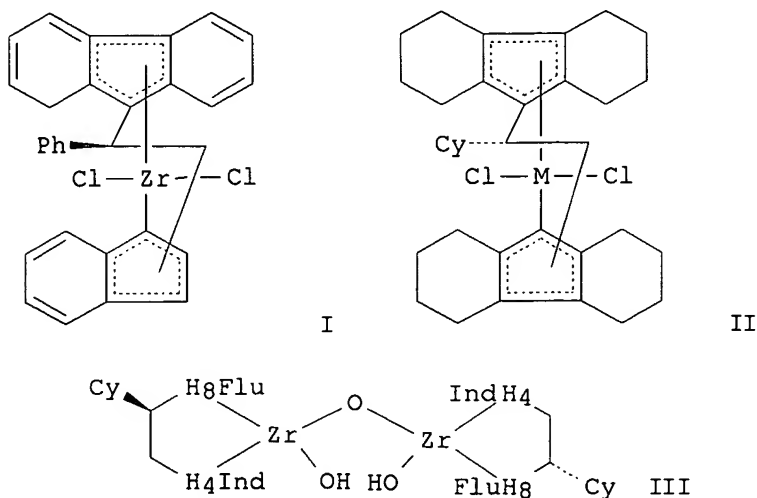
PB American Chemical Society

DT Journal

LA English

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

OS CASREACT 126:89511
GI



AB The authors report on an efficient synthetic route for the preparation of enantiomerically pure ethylene-bridged ansa-zirconocene and -hafnocene complexes, bearing different cyclopentadienyl fragments. Ring opening of (R)-epoxystyrene with fluorenyllithium proceeds enantiospecifically and leads to optically pure 2-(9-fluorenyl)-1-(S)-phenylethanol (2a) and 2-(9-fluorenyl)-2-(S)-phenylethanol (2b) in nearly quant. yield. Treatment of 5, the trifluoromethanesulfonate derivative of 2b, with fluorenyl- and indenyllithium gave 1-(9-fluorenyl)-1-(S)-phenyl-2-(1-indenyl)ethane (6a) and 1,2-bis(9-fluorenyl)-1-(S)-phenylethane (6b), resp. Reaction of the dilithio salts of 6a with $ZrCl_4$ and of 6b with MCl_4 ($M = Zr, Hf$) gave the enantiomerically pure complexes [1-(η^5 -9-fluorenyl)-1-(R)-phenyl-2-(η^5 -1-(R,S)-indenyl)ethane] $ZrCl_2$ (7a = R,R; 7b = R,S, shown as I) and of [1,2-bis(η^5 -9-fluorenyl)-1-(R)-phenylethane] MCl_2 (7c, $M = Zr$; 7d, $M = Hf$) in up to 63% yield. Hydrogenation of 7a-d with H_2/PtO_2 gives the complexes 8a-d (8c shown as II, $M = Zr$), bearing octahydrofluorenyl and tetrahydroindenyl ligands. Hydrolysis of 8a,b in basic, aqueous media gives C2-sym. μ -oxo dimers (12a,b; 12b shown as III). The solid-state structures of enantiomerically pure 7b and 8c and of 12b are reported.

CC 29-10 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 25, 75

ST crystal structure enantiomerically pure ansa zirconocene; mol structure enantiomerically pure ansa zirconocene; enantiomerically pure ansa hafnocene zirconocene prepn; stereoselective ring opening epoxystyrene fluorenyllithium; ethylene bridged ansa hafnocene zirconocene prepn; indenyl enantiomerically pure ansa hafnocene zirconocene; octahydrofluorenyl enantiomerically pure ansa hafnocene zirconocene; tetrahydroindenyl enantiomerically pure ansa zirconocene prepn

IT Metallocenes

RL: SPN (Synthetic preparation); PREP (Preparation)

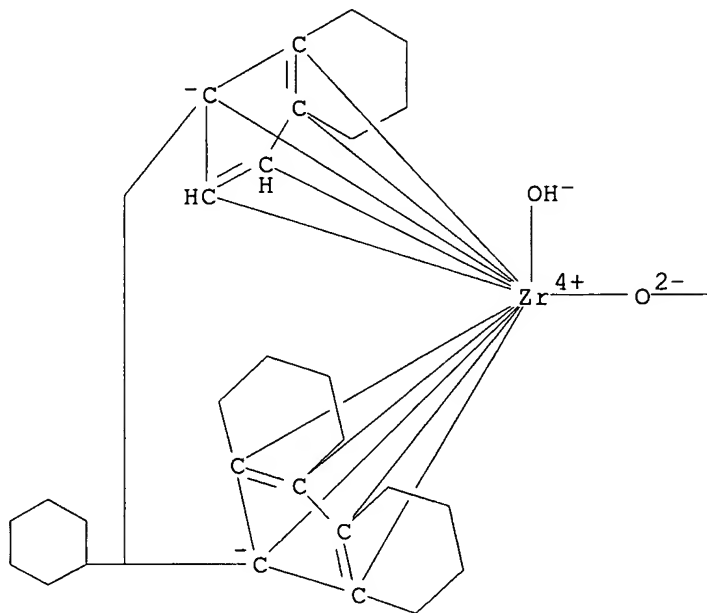
(hafnocenes; synthesis of enantiomerically pure ethylene-bridged ansa-zirconocene and -hafnocene complexes bearing fluorenyl, indenyl, octahydrofluorenyl, and tetrahydroindenyl ligands)

IT Crystal structure

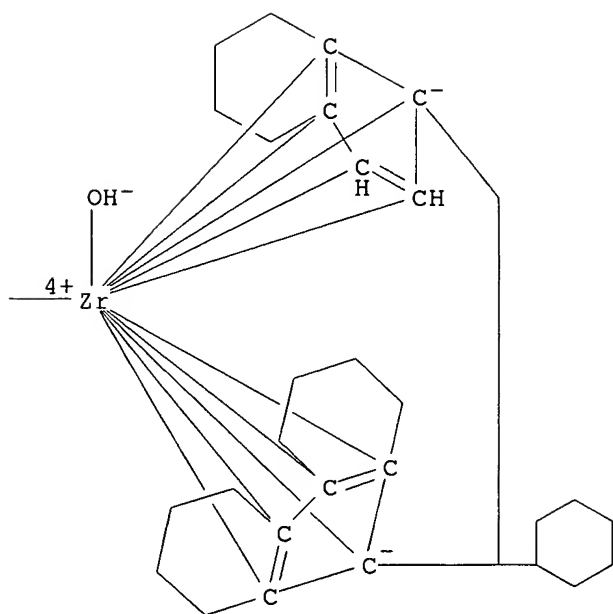
- Molecular structure
(of enantiomerically pure ethylene-bridged ansa-zirconocenes)
- IT Stereochemistry
(of ring opening of epoxystyrene with fluorenyllithium)
- IT Ring opening
(stereoselective; of epoxystyrene with fluorenyllithium)
- IT Metallocenes
RL: SPN (Synthetic preparation); PREP (Preparation)
(zirconocenes; synthesis of enantiomerically pure ethylene-bridged ansa-zirconocene and -hafnocene complexes bearing fluorenyl, indenyl, octahydrofluorenyl, and tetrahydroindenyl ligands)
- IT 185765-36-0P, [1-(η 5-9-Fluorenyl)-1-(R)-phenyl-2-(η 5-1-(S)-indenyl)ethane]zirconium dichloride
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and crystal structure of)
- IT 162524-80-3P **185765-40-6P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
- IT 185670-44-4P 185670-57-9P, 2-(9-Fluorenyl)-(2R)-phenylethanol
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
- IT 20780-54-5, (S)-Epoxystyrene
RL: RCT (Reactant); RACT (Reactant or reagent)
(stereoselective ring opening by fluorenyllithium)
- IT 86-73-7, Fluorene 95-13-6, Indene 358-23-6, Trifluoromethanesulfonic acid anhydride 499-83-2, 2,6-Pyridinedicarboxylic acid 20780-53-4, (R)-Epoxystyrene
RL: RCT (Reactant); RACT (Reactant or reagent)
(synthesis of enantiomerically pure ethylene-bridged ansa-zirconocene and -hafnocene complexes bearing fluorenyl, indenyl, octahydrofluorenyl, and tetrahydroindenyl ligands)
- IT 162524-79-0P, [1,2-Bis(η 5-9-fluorenyl)-1-(R)-phenylethane]zirconium dichloride 185670-43-3P, 2-(9-Fluorenyl)-(2S)-phenylethyl trifluoromethanesulfonate 185670-45-5P, 2-(9-Fluorenyl)-(1S)-phenylethanol 185670-46-6P, 2-(9-Fluorenyl)-(2S)-phenylethanol 185670-47-7P, 1-(9-Fluorenyl)-(1S)-phenyl-2-(1-indenyl)ethane 185670-48-8P, 1,2-Bis(9-fluorenyl)-(1S)-phenylethane 185670-49-9P 185670-55-7P, [1,2-Bis(η 5-9-fluorenyl)-1-(R)-phenylethane]hafnium dichloride 185765-35-9P, [1-(η 5-9-Fluorenyl)-1-(R)-phenyl-2-(η 5-1-(R)-indenyl)ethane]zirconium dichloride 185765-37-1P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(synthesis of enantiomerically pure ethylene-bridged ansa-zirconocene and -hafnocene complexes bearing fluorenyl, indenyl, octahydrofluorenyl, and tetrahydroindenyl ligands)
- IT 185670-50-2P 185670-51-3P 185670-52-4P, [1-(η 5-9-Fluorenyl)-1-(R)-phenyl-2-(η 5-1-(R)-indenyl)ethane]dimethylzirconium 185670-53-5P **185670-54-6P** 185670-56-8P 185765-38-2P 185765-39-3P
RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of enantiomerically pure ethylene-bridged ansa-zirconocene and -hafnocene complexes bearing fluorenyl, indenyl, octahydrofluorenyl, and tetrahydroindenyl ligands)
- IT **185765-40-6P**
RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)
- RN 185765-40-6 HCAPLUS
- CN Zirconium, dihydroxybis[η 10-(1,2,3,4,5,6,7,8-octahydro-9H-fluoren-9-

ylidene) (1-cyclohexyl-1,2-ethanediyl) (4,5,6,7-tetrahydro-1H-inden-1-ylidene)]- μ -oxodi-, stereoisomer (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



IT 185670-54-6P

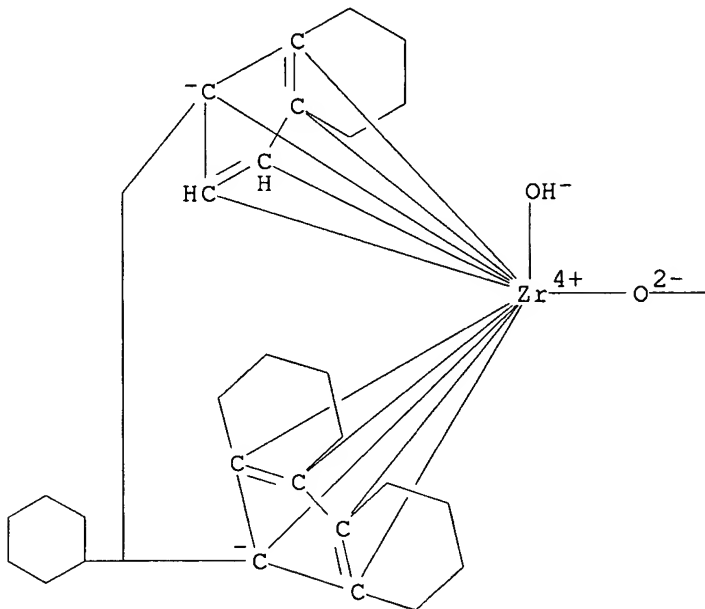
KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

RL: SPN (Synthetic preparation); PREP (Preparation)
(synthesis of enantiomerically pure ethylene-bridged ansa-zirconocene
and -hafnocene complexes bearing fluorenyl, indenyl,
octahydrofluorenyl, and tetrahydroindenyl ligands)

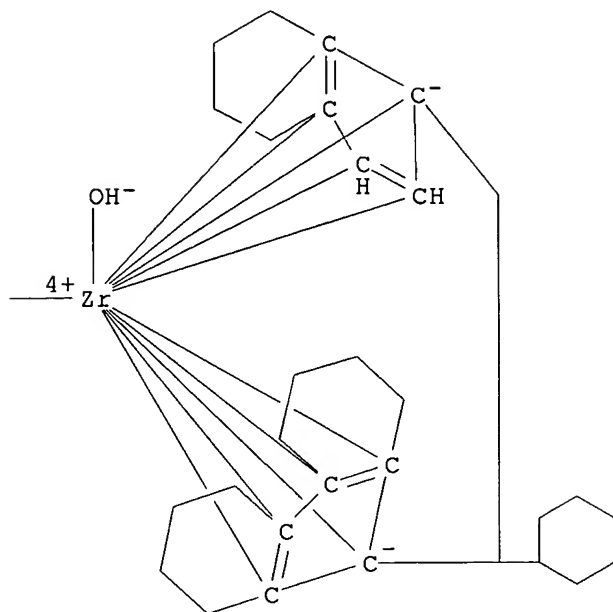
RN 185670-54-6 HCAPLUS

CN Zirconium, dihydroxybis[η^{10} -(1,2,3,4,5,6,7,8-octahydro-9H-fluoren-9-ylidene)(1-cyclohexyl-1,2-ethanediyl)(4,5,6,7-tetrahydro-1H-inden-1-ylidene)]- μ -oxo di-, stereoisomer (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



L40 ANSWER 17 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1996:733931 HCAPLUS

DN 126:19041

TI Polynuclear metallocene compound, process for preparing it and its use as catalyst

IN Aulbach, Michael; Brekner, Michael-Joachim; Kueber, Frank; Zenk, Roland

PA Hoechst A.-G., Germany

SO Eur. Pat. Appl., 16 pp.

CODEN: EPXXDW

DT Patent

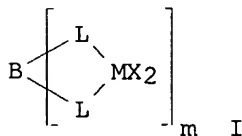
LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 739897	A1	19961030	EP 1996-105605	19960410
	R: AT, BE, DE, ES, FI, FR, GB, IT, NL, SE				
	DE 19514301	A1	19961031	DE 1995-19514301	19950427
	DE 19520599	A1	19961212	DE 1995-19520599	19950606
	AU 9650807	A1	19961107	AU 1996-50807	19960422
	AU 718870	B2	20000420		
	ZA 9603337	A	19960827	ZA 1996-3337	19960426
	CA 2175159	AA	19961028	CA 1996-2175159	19960426
	NO 9601683	A	19961028	NO 1996-1683	19960426
	CN 1141925	A	19970205	CN 1996-106272	19960426
	CN 1066153	B	20010523		
	BR 9602087	A	19981006	BR 1996-2087	19960426
	US 6262197	B1	20010717	US 1996-635408	19960426
	JP 08295696	A2	19961112	JP 1996-109046	19960430
PRAI	DE 1995-19514301	A	19950427		
	DE 1995-19520599	A	19950606		

GI

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505



- AB A report on polynuclear metallocene compds. composed of at least two different metallocene fragments, L-MX-L, which has the formula I wherein B represents a bridge, m represents a number between 2 and 100,000, M is a metal atom from Groups IVB, VB, or VIB, X groups are independent in the same or different metallocene fragments and can be hydrogen, a C1-C40 carbohydrate group, OH, halide, or pseudohalide and L can be independent in the same or different metallocene fragments and represent π -ligands or other electron donor. A process for the preparation of the above compds. and their behavior as catalyst or at least cocatalyst in the manufacture of olefin polymers which can be characterized.
- IC ICM C07F017-00
ICS C08F010-00
- CC 29-10 (Organometallic and Organometalloidal Compounds)
Section cross-reference(s): 67
- ST olefin polymn catalyst polynuclear metallocene; polynuclear metallocene prepn olefin polymn catalyst
- IT Polymerization
(of olefins as catalyzed by polynuclear metallocene compds.)
- IT Polymerization catalysts
(process for preparing polynuclear metallocene compds. for use as catalyst)
- IT Group IVB elements
Group VB elements
Group VIB elements
Sandwich compounds
RL: CAT (Catalyst use); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(process for preparing polynuclear metallocene compds. for use as catalyst)
- IT **183987-05-5P 183987-06-6P**
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)
(preparation as catalyst for olefin polymerization)
- IT 183987-09-9 183987-10-2
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with (cyclopentadienylidene)dichlorozirconium complex)
- IT 183987-07-7 183987-08-8
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with (indenylidene)dichlorozirconium complex)
- IT 28875-08-3
RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with zirconium metallocene complexes to give polynuclear metallocenes)
- IT **183987-05-5P 183987-06-6P**
RL: CAT (Catalyst use); SPN (Synthetic preparation); PREP (Preparation); USES (Uses)

(preparation as catalyst for olefin polymerization)

RN 183987-05-5 HCAPLUS

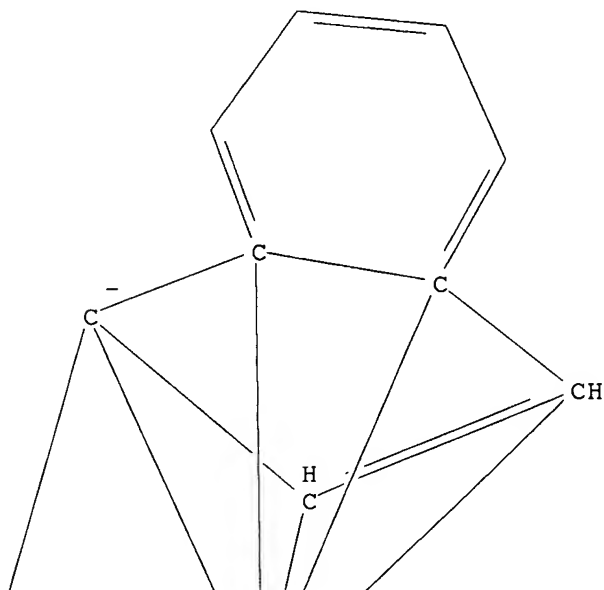
CN Zirconium, tetrachloro[μ-[η10:η10-[3-[[4-(1,3-cyclopentadien-1-yl)-4-(9H-fluoren-9-yl)pentyl](2,6,6-trimethylbicyclo[3.1.1]hept-3-yl)boryl]propyl]methylbis(2-methyl-1H-inden-1-yl)silanato(4-))]di- (9CI)
(CA INDEX NAME)

*** STRUCTURE DIAGRAM IS NOT AVAILABLE ***

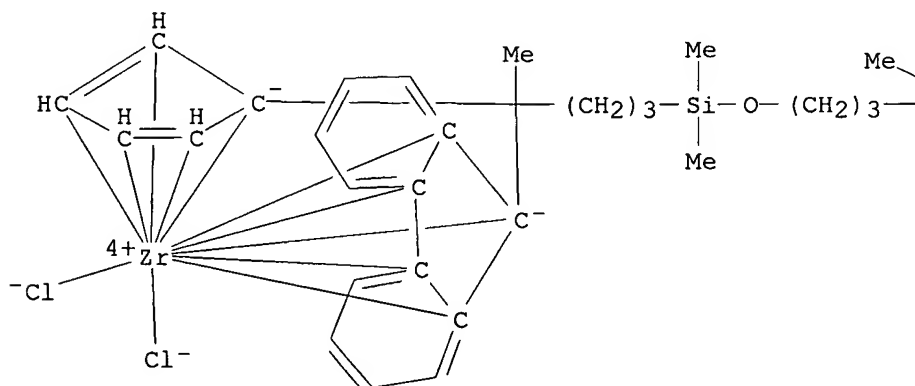
RN 183987-06-6 HCAPLUS

CN Zirconium, tetrachloro[μ-[η10:η10-[4-(1,3-cyclopentadien-1-yl)-4-(9H-fluoren-9-yl)pentyl][3-(di-1H-inden-1-ylmethylsilyl)propoxy]dimethylsilanato(4-))]di- (9CI) (CA INDEX NAME)

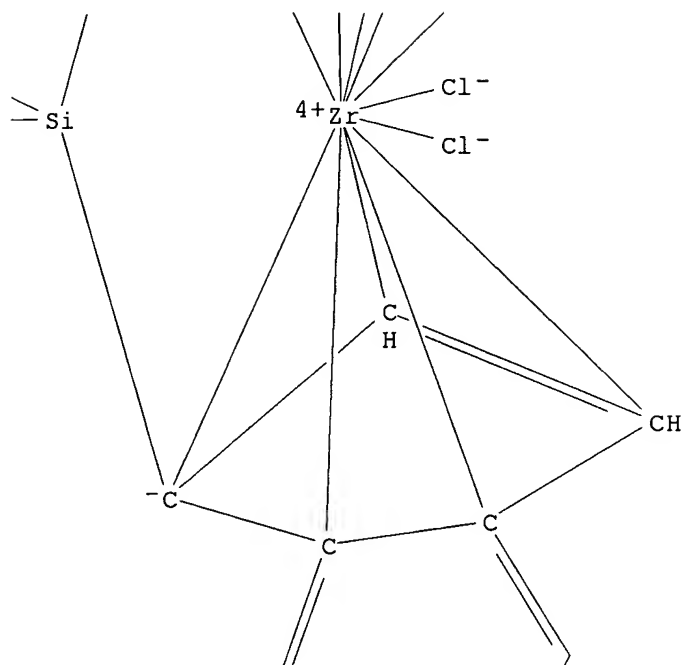
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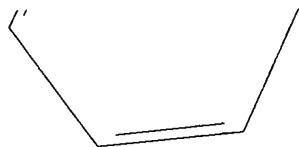
PAGE 2-A



PAGE 2-B



PAGE 3-B



L40 ANSWER 18 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1995:833045 HCAPLUS

DN 123:229279

TI Catalyst systems containing zirconocenes for polymerization of olefins

IN Winter, Andreas; Spaleck, Walter; Bachmann, Bernd

PA Hoechst A.-G., Germany

SO Eur. Pat. Appl., 23 pp.

CODEN: EPXXDW

DT Patent

LA German

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	EP 645401	A1	19950329	EP 1994-114431	19940914
	EP 645401	B1	19940914		
	R: AT, BE, DE, ES, FR, GB, IT, NL, SE				
	DE 4333128	A1	19950330	DE 1993-4333128	19930929
	AT 210158	E	20011215	AT 1994-114431	19940914

KATHLEEN FULLER EIC 1700 REMSEN 4B28 571/272-2505

ES	2169057	T3	20020701	ES	1994-114431	19940914
FI	9404480	A	19950330	FI	1994-4480	19940927
CA	2133181	AA	19950330	CA	1994-2133181	19940928
JP	07179512	A2	19950718	JP	1994-233613	19940928
US	5700886	A	19971223	US	1995-454962	19950531
US	5696045	A	19971209	US	1996-667477	19960624
US	6150481	A	20001121	US	1997-920141	19970826
PRAI	DE 1993-4333128	A	19930929			
	US 1994-312718	B3	19940927			
	US 1996-667477	A1	19960624			
OS	MARPAT 123:229279					
GI						

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB Polyolefins with weight-average mol. weight/number-average mol. weight ≥ 3 and a mono-,

bi-, or polymodal mol. weight distribution are prepared by (co)polymerizing olefins

in the presence of a catalyst system comprising an aluminoxane and ≥ 2 zirconocenes I or ≥ 1 zirconocene I and ≥ 1 zirconocene II (R1-2 = H, alkyl, alkoxy, aryl, halo, etc.; R3 = H, halo, alkyl, haloalkyl, aryl, etc.; R4 = H, halo, alkyl, fluoroalkyl, aryl, alkoxy, etc.; R5-6 = halo, alkyl, haloalkyl, aryl, alkenyl; R7 = Me2Si, MeSiPh, alkylene, etc.; R8-9 = H, halo, alkyl, fluoroalkyl, aryl, fluoroaryl, alkoxy, etc.; m, n = 0-2; m + n = 0-2). A catalyst system comprising an aluminoxane, dimethylsilylenebis(2-methyl-4-phenyl-1-indenyl)zirconium dichloride, and dimethylsilylenebis(indenyl)zirconium dichloride was used for the polymerization of propene or the copolymn. of

propene

and ethylene.

IC ICM C08F010-06

ICS C08F004-642; C07F017-00

CC 35-3 (Chemistry of Synthetic High Polymers)

ST zirconocene aluminoxane catalyst polymn olefin; polypropene prepn catalyst aluminoxane zirconocene; ethylene propene copolymn catalyst aluminoxane zirconocene

IT Polymerization catalysts

(aluminoxane-zirconocene; for olefins with control of mol. weight distribution)

IT Sandwich compounds

RL: CAT (Catalyst use); USES (Uses)

(zirconocenes, catalysts; for polymerization of olefins with control of mol. weight distribution)

IT Aluminoxanes

RL: CAT (Catalyst use); USES (Uses)

(Me, catalysts; for polymerization of olefins with control of mol. weight distribution)

IT 9003-07-0P, Polypropene 9010-79-1P, Ethylene-propene copolymer

106565-43-9P, Ethylene-propene block copolymer

RL: IMF (Industrial manufacture); PREP (Preparation)

(aluminoxane-zirconocene catalyst systems for preparation of)

IT 100080-82-8 121009-93-6 125822-49-3 125822-50-6 130638-44-7

132510-07-7 132530-06-4 133775-72-1 134108-60-4 143278-86-8

143346-94-5 143490-92-0 143563-12-6 143563-15-9 149095-22-7

149197-69-3	150952-63-9	150952-64-0	150995-51-0	152071-12-0
152690-13-6	152730-43-3	152881-66-8	152881-67-9	153882-66-7
153882-67-8	153882-69-0	153882-70-3	154754-96-8	154787-65-2
154787-66-3	162426-41-7	162426-42-8	162426-43-9	168466-05-5
168466-06-6	168466-07-7	168466-08-8		
168466-10-2	168466-11-3	168466-12-4	168466-13-5	
168466-14-6	168749-19-7	168749-20-0	168749-21-1	168749-22-2
168749-23-3	168749-24-4	168749-25-5	168749-26-6	168749-27-7
168749-28-8				

RL: CAT (Catalyst use); USES (Uses)

(catalyst; for polymerization of olefins with control of mol. weight distribution)

IT **168466-06-6 168466-08-8 168466-10-2**

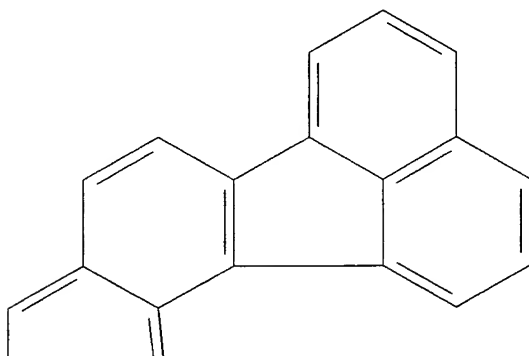
RL: CAT (Catalyst use); USES (Uses)

(catalyst; for polymerization of olefins with control of mol. weight distribution)

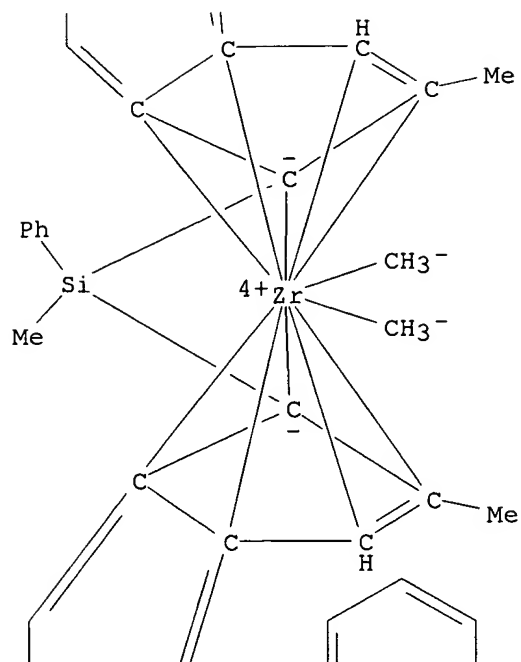
RN 168466-06-6 HCAPLUS

CN Zirconium, dimethyl[(methylphenylsilylene)bis[(1,2,3,3a,13d-η)-2-methyl-3H-indeno[4,5-j]fluoranthene-3-ylidene]]-, stereoisomer (9CI) (CA INDEX NAME)

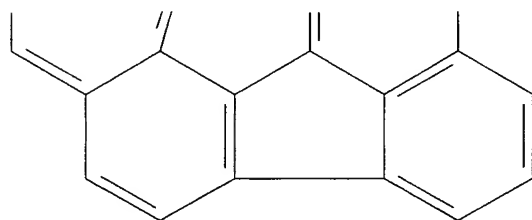
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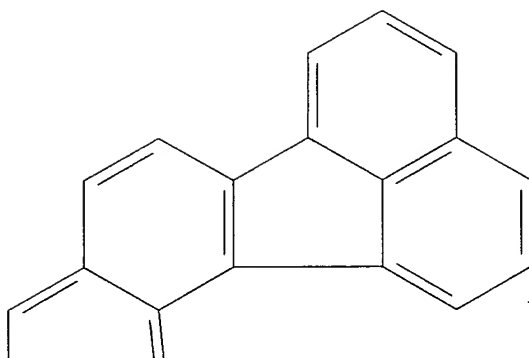


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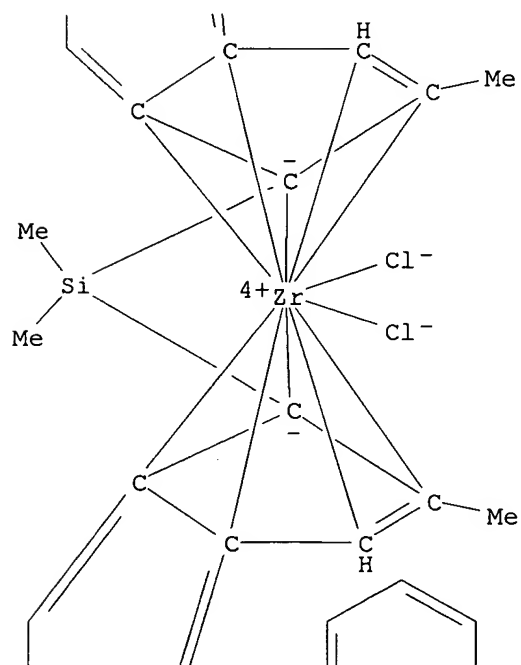


RN 168466-08-8 HCAPLUS
CN Zirconium, dichloro[(dimethylsilylene)bis[(1,2,3,3a,13d-η)-2-methyl-3H-indeno[4,5-j]fluoranthene-3-ylidene]]- (9CI) (CA INDEX NAME)

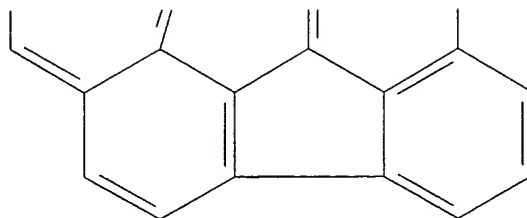
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PAGE 2-A



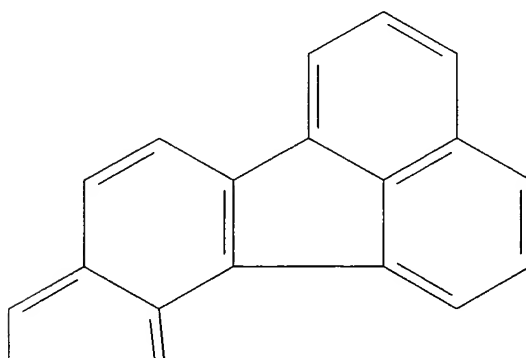
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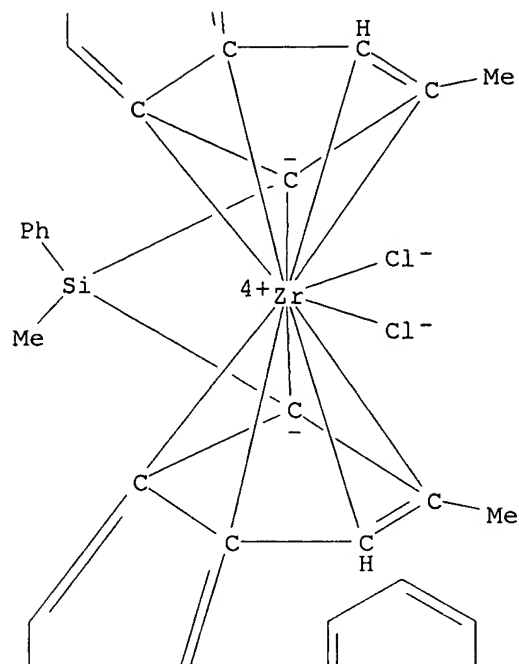
RN 168466-10-2 HCAPLUS

CN Zirconium, dichloro[(methylphenylsilylene)bis[(1,2,3,3a,13d-η)-2-methyl-3H-indeno[4,5-j]fluoranthene-3-ylidene]]- (9CI) (CA INDEX NAME)

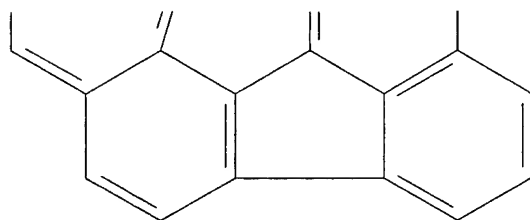
PAGE 1-A



PAGE 2-A



PAGE 3-A



L40 ANSWER 19 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN
AN 1995:468995 HCAPLUS
DN 123:56157
TI The formation and molecular structure of $[\text{Na}(\text{THF})_6][(\eta^5\text{-C}_9\text{H}_7)_3\text{Pr}(\mu\text{-Cl})\text{Pr}(\eta^5\text{-C}_9\text{H}_7)_3]$
AU Ye, Zhongwen; Wang, Shaowu; Kong, Deyuan; Huang, Xiaoying
CS Institute of Organic Chemistry, Anhui Normal University, Wuhu, Anhui, 241000, Peop. Rep. China
SO Journal of Organometallic Chemistry (1995), 491(1-2), 57-60
CODEN: JORCAI; ISSN: 0022-328X
PB Elsevier
DT Journal
LA English
OS CASREACT 123:56157
AB The reaction of 1:0.8 mol ratio of anhydrous PrCl_3 with Na indenyl in THF gave $[\text{Na}(\text{THF})_6][(\eta^5\text{-C}_9\text{H}_7)_3\text{Pr}(\mu\text{-Cl})\text{Pr}(\eta^5\text{-C}_9\text{H}_7)_3]$ in good yield.

X-ray anal. demonstrates that the complex consists of a disconnected ion pair formed by $[(\eta^5\text{-C}_9\text{H}_7)_3\text{Pr}(\mu\text{-Cl})\text{Pr}(\eta^5\text{-C}_9\text{H}_7)_3]$ anion and the Na cation surrounded by six THF mols. The complex crystallizes in the triclinic system, of space group P1 with unit-cell consts. a 10.693(2), b 12.687(2), c 12.825(2) Å, α 92.48(2), β 82.17(2), γ 91.73(1)°, d_c = 1.41 g cm⁻³ for Z = 1. The structure was solved by direct methods and full-matrix least-squares refinement to the final R = 0.062, R_w = 0.072.

CC 29-10 (Organometallic and Organometalloidal Compounds)

Section cross-reference(s): 75

ST crystal structure praseodymium indenyl complex; mol structure praseodymium indenyl complex

IT Crystal structure

Molecular structure

(of praseodymium indenyl complex)

IT **164798-51-0P**

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

IT 23181-84-2, Indenylsodium

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with praseodymium chloride)

IT **164798-51-0P**

RL: PRP (Properties); SPN (Synthetic preparation); PREP (Preparation)
(preparation and crystal structure of)

RN 164798-51-0 HCAPLUS

CN Sodium(1+), hexakis(tetrahydrofuran)-, (OC-6-11)-, μ -chlorohexakis[(1,2,3,3a,7a- η)-1H-inden-1-yl]diniobate(1-) (9CI) (CA INDEX NAME)

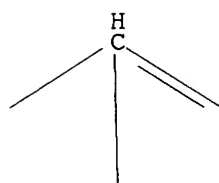
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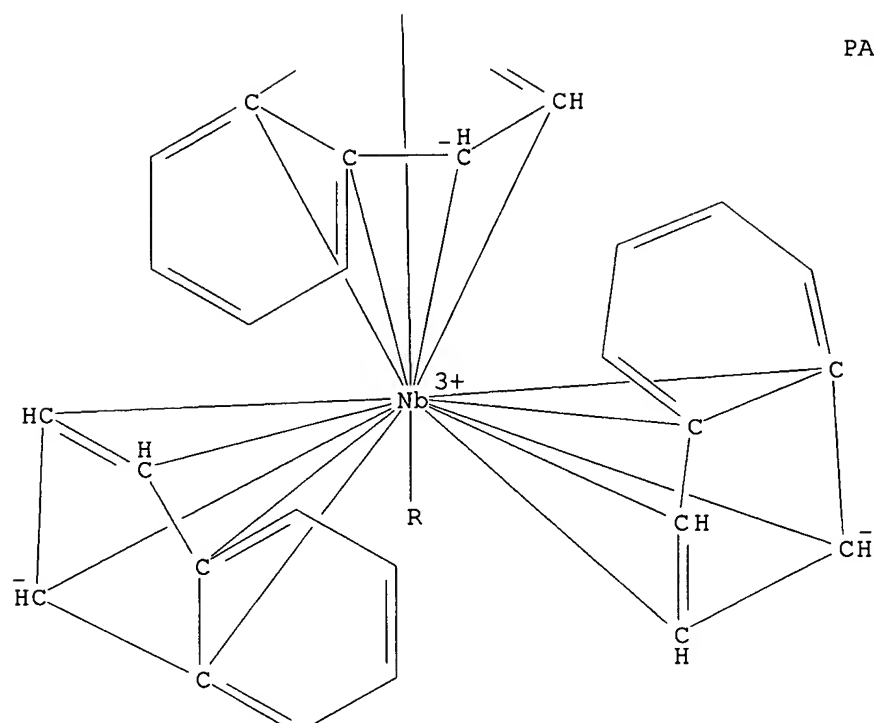
CRN 164798-50-9

CMF C54 H42 Cl Nb2

CCI CCS

PAGE 1-A

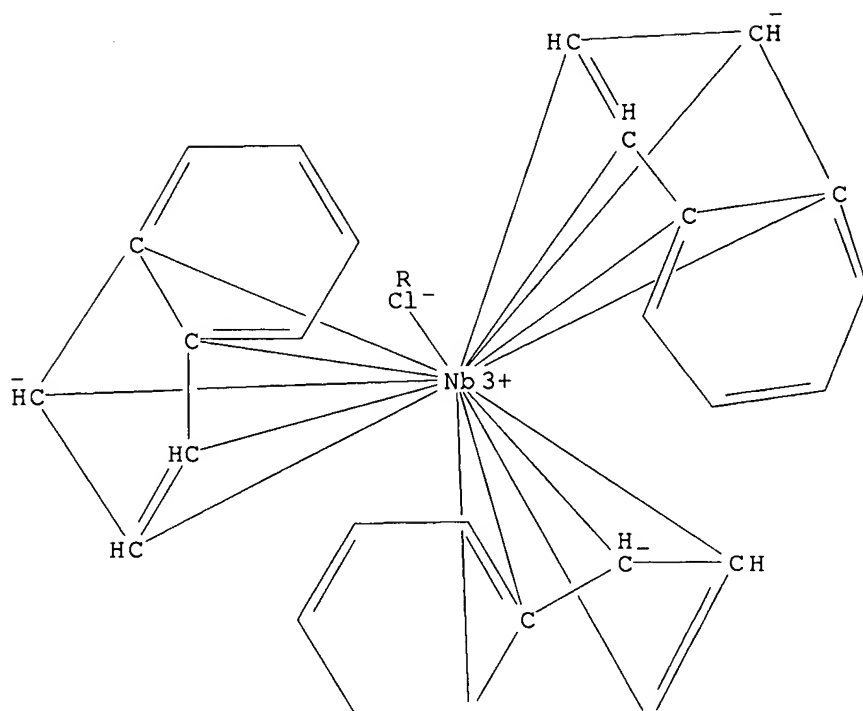




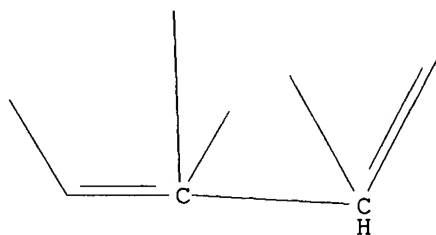
PAGE 2-A

PAGE 3-A

PAGE 4-A



PAGE 5-A

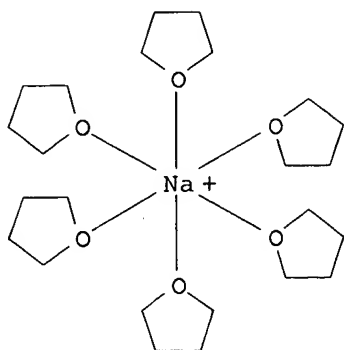


CM 2

CRN 73587-41-4

CMF C24 H48 Na O6

CCI CCS



L40 ANSWER 20 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1982:472506 HCAPLUS

DN 97:72506

TI A voltammetric study of the metal-ligand interaction in bis(arene)chromium(I) complexes

AU Ito, Naoyuki; Saji, Tetsuo; Suga, Kosaku; Aoyagui, Shigeru

CS Dep. Chem. Eng., Tokyo Inst. Technol., Tokyo, 152, Japan

SO Journal of Organometallic Chemistry (1982), 229(1), 43-7

CODEN: JORCAI; ISSN: 0022-328X

DT Journal

LA English

AB Cyclic-voltammetric and ESR measurements are made on 9 [(arene)₂Cr]⁺ (I; arene = condensed aromatic hydrocarbon) complexes. Every cyclic voltammogram exhibits a reversible, 1-electron reduction, the half-wave potential of which is independent of the ligands. Therefore, the redox orbitals should be of pure σ character, which partly originates from ligand σ orbitals. The ESR spectrum of each I exhibits, besides 53Cr hyperfine lines, only 1H hyperfine lines due to a pair of benzene rings bonded to Cr, irrespectively of the total number of the rings. Thus, the HOMO of [(arene)₂Cr]⁰ is mainly composed of the metal 3d_{z²} and the ligand σ orbitals. However, formation of [(naphthalene)₂Cr]⁻ by chemical reduction, previously reported by Henrici-Olive and Olive (1970), is not substantiated by these voltammetric expts.

CC 29-11 (Organometallic and Organometalloidal Compounds)

ST arenechromium voltammetry ESR; chromium bisarene voltammetry ESR

IT Electron spin resonance

Reduction, electrochemical

(of bis(arene)chromium(I) complexes)

IT Molecular orbital

(HOMO, of bis(arene)chromium(0) complexes)

IT Voltammetry

(cyclic, of bis(arene)chromium(I) complexes)

IT 11077-47-7 31833-49-5 51608-45-8 82579-44-0 82579-45-1

82579-46-2 82579-47-3 **82579-48-4** 82585-08-8

RL: PRP (Properties)

(cyclic voltammetry and ESR spectrum of)

IT **82579-48-4**

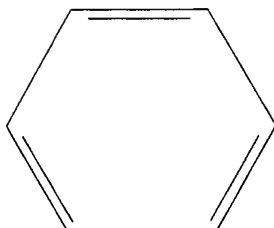
RL: PRP (Properties)

(cyclic voltammetry and ESR spectrum of)

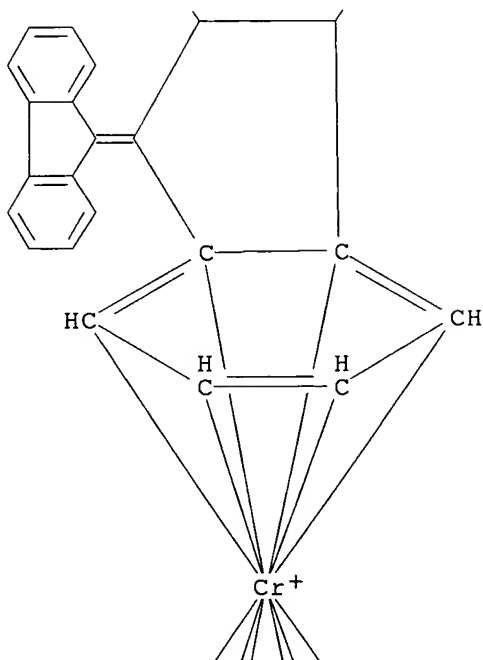
RN 82579-48-4 HCAPLUS

CN Chromium(1+), bis[(1,2,3,4,4a,9a- η)-9-(9H-fluoren-9-ylidene)-9H-fluorene]⁻ (9CI) (CA INDEX NAME)

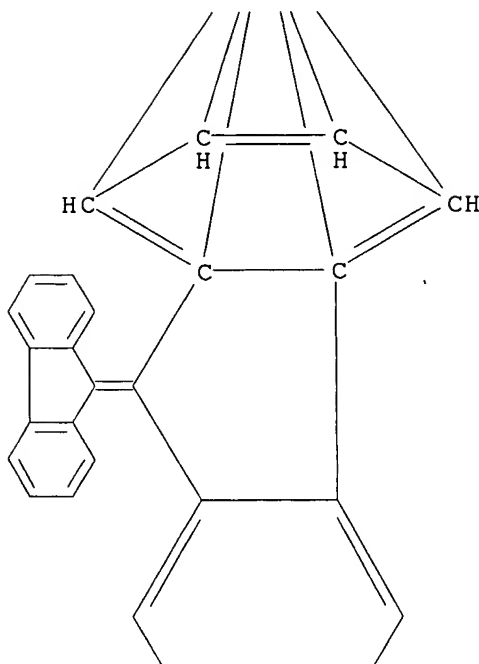
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L40 ANSWER 21 OF 21 HCAPLUS COPYRIGHT 2004 ACS on STN

AN 1977:423436 HCAPLUS

DN 87:23436

TI Complex chemistry of reactive organic compounds, XIV. The reactions of aliphatic diazo compounds with the tricarbonyl(cyclopentadienyl)hydrides of molybdenum and tungsten

AU Herrmann, Wolfgang A.; Biersack, Helmut

CS Chem. Inst., Univ. Regensburg, Regensburg, Fed. Rep. Ger.

SO Chemische Berichte (1977), 110(3), 896-915

CODEN: CHBEAM; ISSN: 0009-2940

DT Journal

LA German

GI For diagram(s), see printed CA Issue.

AB Depending on their constitution, aliphatic diazo compds., N2CRR1 (I, R = H, Me; R1 = H, Me, Ph, p-O2NC6H4, p-anisyl), behave differently in their reactions with CpMH(CO)3 (Cp = π -cyclopentadienyl, M = Mo, W). N2CH2, N2CHMe, and N2CMe2 were stabilized alkaline diazo ligands in CpM(CO)2[N2CHRR1]. Phenyl-, p-nitrophenyl-, p-anisyl-diazomethane, and 9-diazo fluorene gave cleanly the carbene insertion products CpM(CO)3CHRR1, whereas N2CHBz and diazodimedone gave the binuclear diazo complexes

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$\text{CpM}(\text{CO})_3\text{M}(\text{CO})_2\text{Cp}[\text{N}_2\text{CRR1}]$. $\text{N}_2\text{C}(\text{CO}_2\text{Et})_2$ acted as an imino-amido ligand in I which arose from 1,1-insertion of $\text{N}_2\text{C}(\text{CO}_2\text{Et})_2$ into the polar W-H bond of $\text{CpW}(\text{CO})_3\text{H}$.

CC 29-11 (Organometallic and Organometalloidal Compounds)

ST diazoalkane metal carbonyl reaction; molybdenum hydride diazo compd reaction; tungsten hydride diazo compd reaction; hydride molybdenum tungsten reaction; carbene insertion metal hydride

IT Carbonyls

RL: RCT (Reactant); RACT (Reactant or reagent)
(cyclopentadienyl hydrides, reactions with aliphatic diazo compds.)

IT Insertion reaction

(of diazo compds. into molybdenum and tungsten hydrides)

IT Diazo compounds

RL: RCT (Reactant); RACT (Reactant or reagent)
(aliphatic, reaction with tricarbonyl(cyclopentadienyl)hydridomolybdenum and- tungsten)

IT 746-47-4P 12082-25-6P 12082-27-8P 12194-07-9P 31798-36-4P
38547-50-1P 54774-63-9P 59307-54-9P 62745-28-2P 62745-29-3P
62745-30-6P 62766-96-5P 62766-97-6P 62768-66-5P
62768-67-6P 62785-16-4P 62785-17-5P 62785-18-6P

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

IT 12128-26-6 12176-06-6

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with aliphatic diazo compds.)

IT 334-88-3 766-91-6 832-80-4 1117-96-0 1807-68-7 2684-60-8
3282-32-4 5256-74-6 19479-80-2 23304-25-8

RL: RCT (Reactant); RACT (Reactant or reagent)
(reaction with tricarbonyl(cyclopentadienyl)hydridomolybdenum and- tungsten)

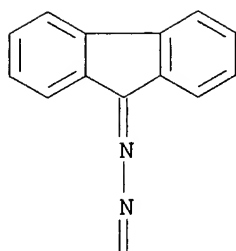
IT **62745-30-6P**

RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)

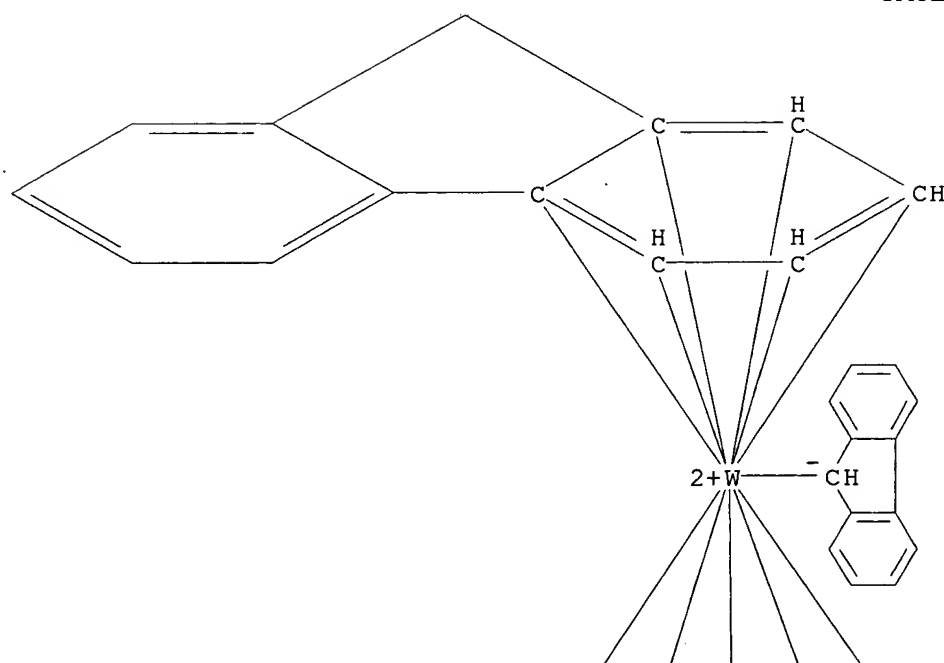
RN 62745-30-6 HCAPLUS

CN Tungsten, (η^5 -2,4-cyclopentadien-1-yl)[(1,2,3,4,4a,9a- η)-9H-fluoren-9-one 9H-fluoren-9-ylidenehydrazone]-9H-fluoren-9-yl- (9CI) (CA INDEX NAME)

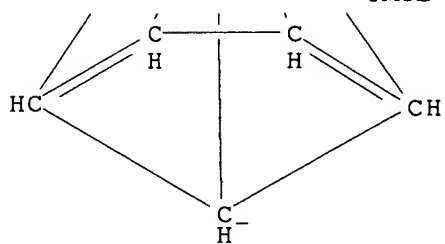
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